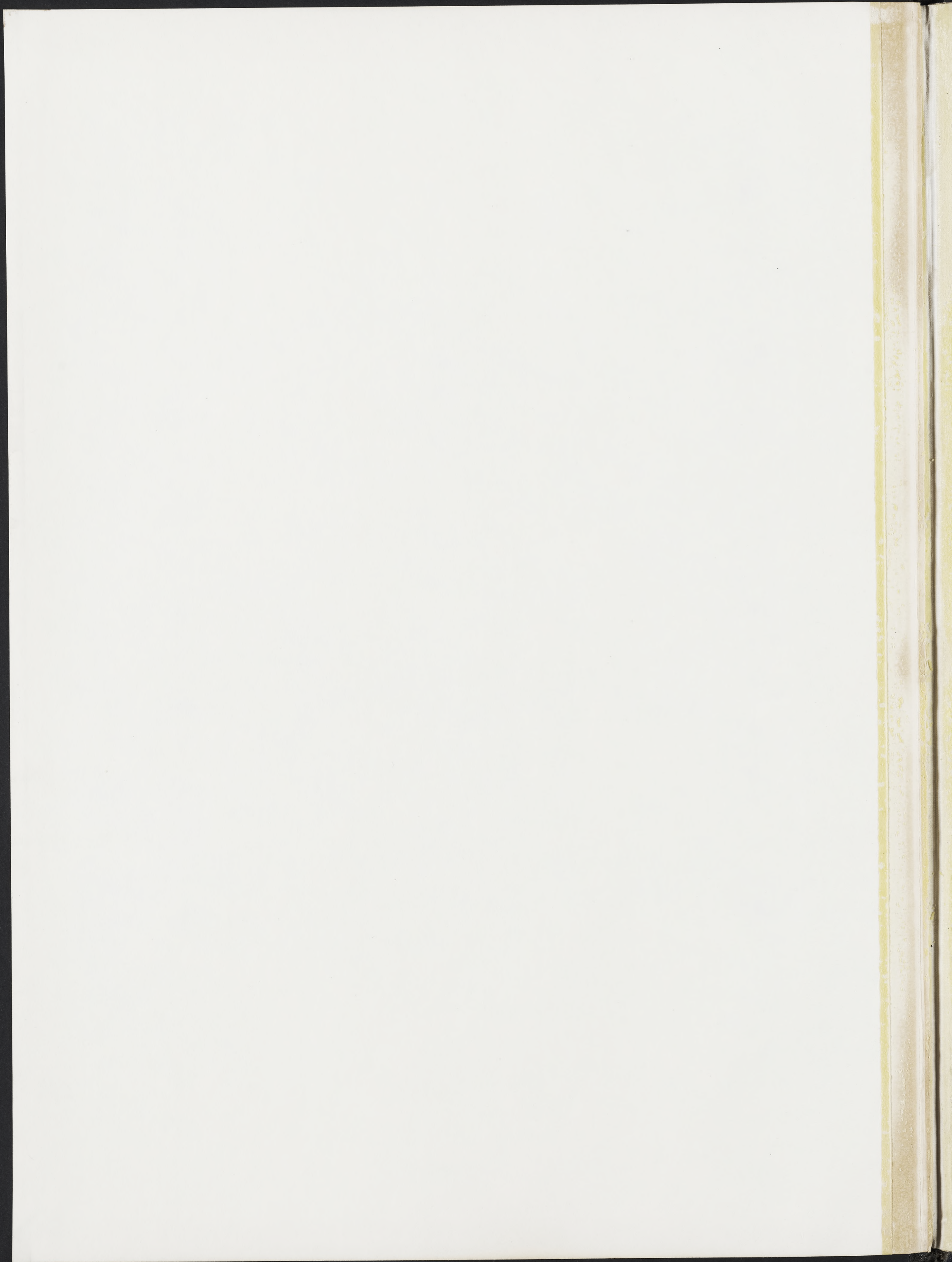
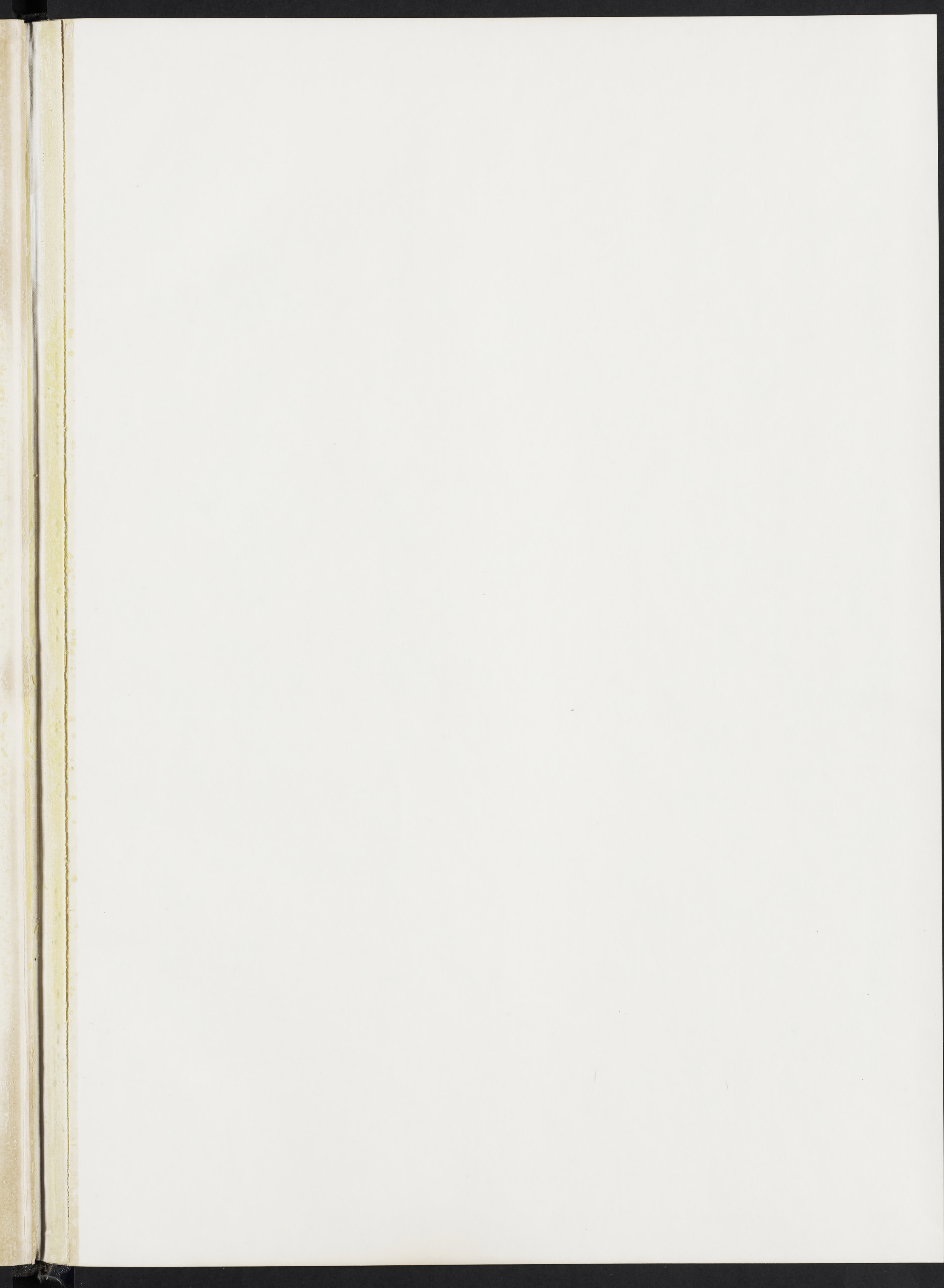
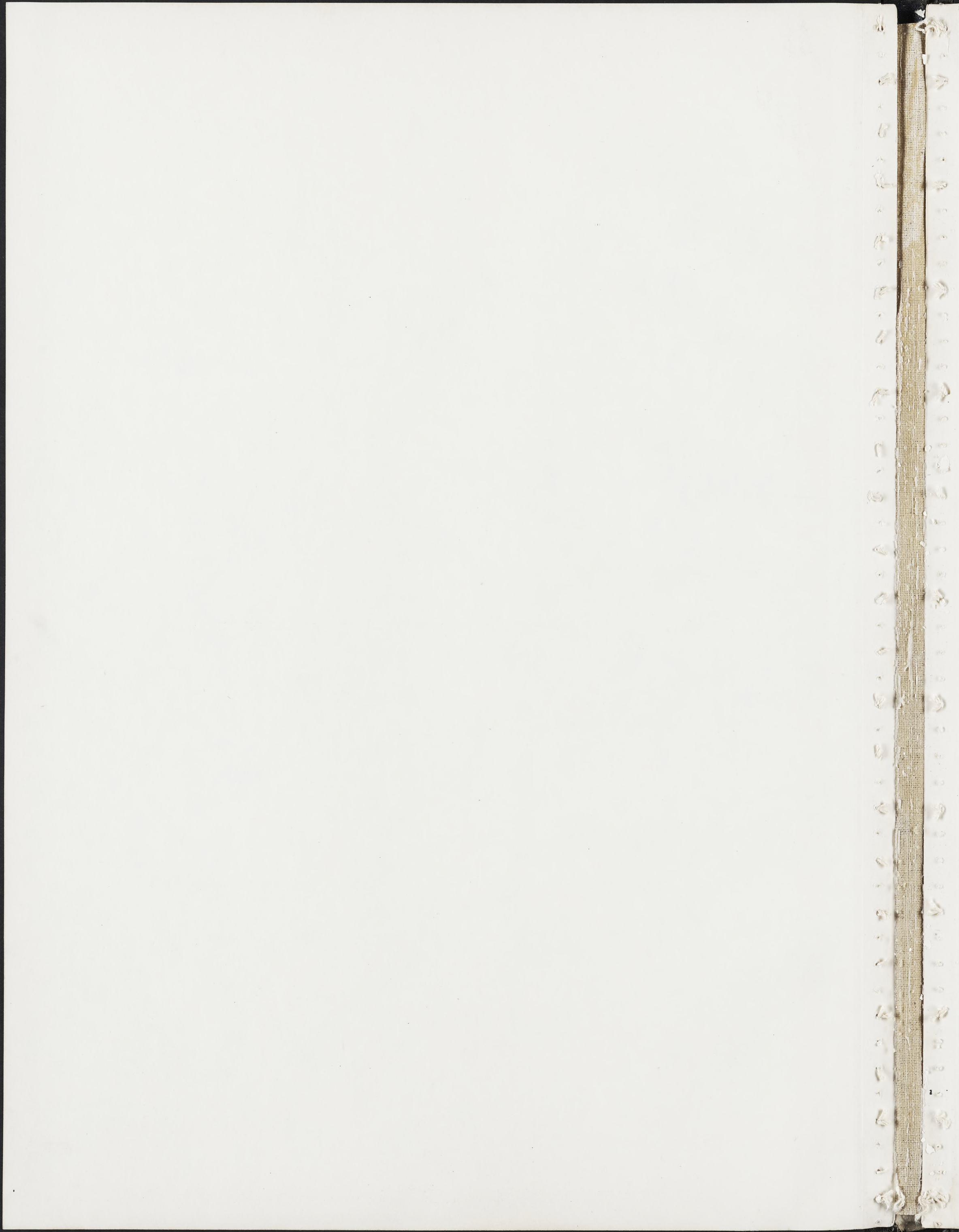


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NORTHROP NEWS

VENTURA DIVISION EDITION

Published biweekly by Northrop Corporation, Beverly Hills, California

Vol. 28, No. 1

January 21, 1970



\$1,000 VENTURA PRIZE WINNER

Rex Fairless and Carol Thomas flank big Giant Step winner Lowell Lyle.

'Safety Monitors' Picked For Anti-Accident Drive

"Safety is everybody's business," to use the old paraphrase. And now at Ventura Division it is the specific "business" of 29 men and women.

The 29 people, primarily from the Manufacturing area, have been appointed Safety Monitors in a continuing program to aid personnel in avoiding accidents.

Studies of the Ventura facility have shown that nearly all employee accidents are the result of human negligence rather than unsafe or inadequate working conditions.

Very Important

"Safety Monitors are a vital part of the Accident Prevention Program at this division," notes Rex Fairless, director of Industrial Relations. "Safety begins on the job and it is through the efforts of interested employees, such as Safety Monitors, that this program can become really effective."

The role of the safety-con-

scious monitors is to assist foremen and supervisors in heading off work practices which may tend to jeopardize employee safety.

Appointed to this concentrated effort for the next six months are Zack Silvers, Ray Mendosa, Dale Fullerton, Vic Morgan, Sam Mannino, Pat Douglas, Anthony Viano, Donald Ching, Danny Bucciarelle and Bill Leeds.

Serving Others

Also, Betty Crompton, Hideyo Bennett, James Begley, Ron Sower, Doug Main, John Rowe, Ed Kovacevich, Joe Millner, John Howorth, Bob Baltz and Della Vickers.

Rounding out the list are Guy Ransbottom, John Peters, Stan Nutter, Clyde Ray, Norbert Stohlmann, Tom Cotton, Don Woolard and Jim Karas.

DOROTHY PRYCHODA TO LEAD REC CLUB

Eighteen-year Northrop employee Dorothy Prychoda has been re-elected to the presidency of the Ventura Division Recreation Club.

Mrs. Prychoda, of Budgets Control, will be installed with the rest of the slate in the annual Rec Club dinner meeting. The dinner will be in the Wine Cellar Room at the Westlake Inn on Feb. 21.

Vice president of the Ventura Rec Club is Wade Tilley. Bob Calhoon is the new sergeant-at-arms. Re-elected were Tony Piscuskas, treasurer, and Betty Reinisch, secretary.

WE'VE MOVED

Ventura Division office of the Northrop News is now located in Room 182-B in the Engineering Building, according to Ventura Division edition editor, Peter Toll.

News tips and related information may be mailed to Northrop News, Zone E-3. The telephone extension, 1425, remains unchanged.

Almost 1,000 Suggestions Aided 'Giant Step' Cost-Cutting Drive

Thousands of dollars in operational savings were achieved through the recently concluded "Operation Giant Step" program at the Ventura Division.

Tom Tapper, program coordinator, says the 12-week program brought nearly 1,000 suggestions from cost-conscious Ventura personnel. Many suggestions still remain to be processed for cash awards.

The prize drawings, for which all suggesters were eligible, were a major highlight of the program, Mr. Tapper said. The final

drawing just before Christmas climaxed the program.

Lowell A. Lyle, a buyer and five-year Ventura employee, won the grand prize—a 10-day all expense paid trip to Hawaii for two or \$1,000 cash. He took the \$1,000.

Contacted last week, Mr. Lyle said he still hadn't spent the money. "As a matter of fact it's in a savings account in the Ventura Division Credit Union."

"My wife and I are saving it for a vacation—we don't know where or when yet, but when we

do we'll have the money to do it with."

Winning prizes in that final drawing were Dick Schwend, Lee Bradley, Paul Potter, George Zimmerman, Ray Janis, Doc Powell, Chris Benneche, G. K. Edwards, Bill Keating and Ed Kovacevich.

Prize winners in the late November drawing were Jane Nelson, Wyne Dunn, Russ Thomas, Collene Pierce, W. E. Packert, M. C. Myers, Chuck Taylor, G. K. Edwards, Anthony Fortuna and R. R. Martin.

MANAGEMENT CLUB DINNER DRAWS 150

More than 150 members of the Ventura Division Management Club attended the first meeting of 1970 at the Sunset Hills Country Club, Thousand Oaks, on Jan. 14.

Keynote speaker was Howard Lockwood, Corporate Personnel administrator of Lockheed Aircraft Corp. Mr. Lockwood is an advisor to top management in management development, minority employment and employee development.

The Management Club's next meeting will be Feb. 17 at Los Robles Inn, Thousand Oaks.

CHIN TO HEAD BRIDGE CLUB

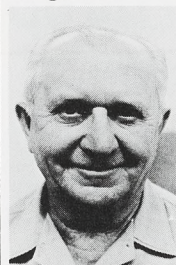
Terry Chin has been elected to succeed Bob Calhoon as president of the Ventura Division Bridge Club.

Other new officers are Leon Scrydloff, vice president; Tanet Palmer, secretary-treasurer; and Mr. Calhoon, director.

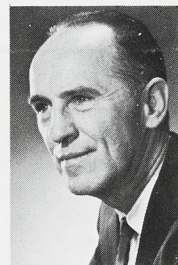
Gary Carver and Betty Reinisch were the nominating committee.

Suggesters Reap \$1,102 For Money-Saving Ideas

Twenty Ventura personnel—including two men who have been awarded almost \$300 apiece—share \$1,102 in the latest list of Suggestion Award cash recipients.



Mr. Kravitz



Mr. Fortuna

Michael Kravitz and Anthony Fortuna were given the most money for their cost-cutting ideas.

Mr. Kravitz, of the Plumbing subunit, received \$297 for an idea to improve drainage in the 747 metal spray booth tanks.

Mr. Fortuna, of 747 Assembly Inspection, was awarded \$295 for thinking of a time-saving method of tagging defective

parts for faster rework or rejection.

Juan Wilson received \$98 for suggesting sewing bleeder cloth in plastic layup instead of taping it. K. L. Widick got \$81 for suggesting smaller patterns on a 747 panel.

John Clancy's idea involving utilization of present stock for new parts won him \$60. Marie Bartz thought of a new spring holder installation and received \$54. Her husband, Al, was a \$15 recipient.

Rose Harrington received \$39 for her idea, Norris Drewery's suggestion earned him \$31 and W. D. Tucker was a \$25 recipient.

Adele Grunau got \$21 and Larry Keener and I. K. Willson each received \$13.

Awarded \$10 each for their cost-cutters were Sue Amison, Juanita Luthringer, M. M. Moore, Lila Williams, Bert Molina, Jack Landis and J. C. Peters.

Roy Brown Will Receive 20-Year Pin This Month

Roy Brown leads the January list of service pin recipients at the Ventura Division. The 13 honorees have accumulated 145 years of service with the company.



Mr. Brown

Mr. Brown, a machinist, is a 20-year man. He first went to work with the company on Jan. 23, 1950.

The six 15-year pin recipients are Gerald Riley, Zach Silvers, Eldie Lorentson, Chuck Courtemanche, Virgil Barstad and Margaret Kogut.

Walt Kniffen is the lone qualifier for a 10-year pin.

Receiving five-year pins this month are Adele Kerner, Celia Hagler, Judy Eddy, Judy Keohane and Bertha Rose.

Division Displays At Shareholders Meeting



VENTURA DIVISION General Manager Welko E. Gasich and Tom Tapper, Customer Relations, right, inspect Ventura Division displays at annual Northrop shareholders meeting last month.

NORTHROP NEWSMAKERS

Ward Dennis, Corporate office, has been named to membership on the National Council of the National Planning Association. This nonprofit, nonpolitical group is concerned with the study of methods for the full utilization of the nation's productive resources to give the American people the highest possible material and cultural standards of living.

Herb Dugger, Aircraft Division,

has been named San Pedro's "Toastmaster of the Year" through a point system covering meeting attendance, performance, outside engagements and securing new members. He is currently administrative vice president of the San Pedro group and defending champion in its serious speech contest.

Herb Cooles, Aircraft Division, appeared on KCET TV's INTERFACE program early

this month. He discussed Northrop's "large amplitude" flight simulator with narrator Dr. Albert Hibbs who photographed "flying" the simulator at Northrop's Hawthorne facility.

Ronald Shelton, Aircraft Division, has been named to a two-year term as commissioner of the City of Cerritos' rehabilitation appeals board commission. Mr. Shelton was selected for the job by Mayor Tony Cordeiro.

William E. Grahame, Aircraft Division, has been named a member of the AIAA Technical Committee on VTOL Aircraft Systems for 1970. Mr. Grahame is currently directing research on advanced VTOL concepts in the Aerodynamics and Propulsion Research and Technology department and has been involved in various VTOL activities at Northrop since 1966.

Andrzej Wortman, Aircraft Division, has prepared two papers for presentation at the AIAA's 8th Aerospace Sciences Meeting this week. He authored "Aerothermodynamic Attitude, Altitude, Airspeed Sensor" alone. He and Professor A. F. Mills, UCLA, co-authored "Three Dimensional Boundary-Layer Flow With Variable Properties and Mass Transfer."

Credit Union Directors Declare Annual Dividend

A dividend of 6½ per cent (per annum rate) was declared by the board of directors of the Northrop Credit Union at their regular January meeting, according to Mary Delaney, Credit Union manager.

"This dividend was credited to all shares accounts as of Jan. 1, 1970," said Mrs. Delaney, "and should be considered as 1970 income."

The Credit Union's 1968 earnings paid as dividends in 1969 should be included in 1969 tax returns. To assist members in filing tax returns, the end-of-the-year statements will contain yearly figures for computing taxes.

"Dividends paid in 1969 (based on 1968 earnings) are recorded in the lower left of the statements," Mrs. Delaney said. "In the lower right of the state-

ment we have recorded the total interest paid by the member on any 1969 loans."

The Credit Union will also pay a semi-annual dividend in the year 1970 with the period dates ending May 31 and Nov. 30.

ANNUAL MEETING

The annual meeting of Northrop Credit Union shareholders will be held at 5 p.m., Feb. 3, in the Northrop cafeteria, Hawthorne, to elect directors, credit committee members and supervisory committee members.

Shareholders of record on the books of the Corporation at the close of business Feb. 3, will be entitled to vote at the meeting, according to Mary Delaney, Credit Union manager.

NASA Honors BR-Northrop For Apollo Contributions

Brown and Root-Northrop has been awarded a Center Certificate of Appreciation by NASA's Manned Spacecraft Center for its outstanding contribution to the Apollo program.

Presentation was made by Dr. Robert R. Gilruth, director, Manned Spacecraft Center, at an honors award ceremony held re-

cently at the Center. Receiving the certificate on behalf of BRN employees was Harry P. Clagget, manager of the BRN project at the Center.

The certificate read in part, "For outstanding contributions to the Apollo program which were vital to the successful achievement of the national goal of landing men on the moon and returning them safely to earth in this decade, accomplished by Apollo 11 mission—July 1969."

Brown and Root-Northrop directly supported the NASA Lunar Receiving Laboratory where the Apollo 11 astronauts and rock samples brought back from the moon were quarantined for three weeks after their return from space. BRN personnel also aided in preparing the rock samples for transmittal to scientists around the world who joined NASA in probing for lunar secrets.

MORE COMING

One of the most popular sales items offered by Northrop Personnel Activities outlets in recent months are plastic model kits of the Boeing 747 jetliner. Some 2,500 of these were sold shortly after they arrived.

A follow-on order for 2,000 additional kits has been placed. They are expected to arrive in late January and will go on sale at all Northrop facilities immediately. They sell for \$1.50 each.



NASA APOLLO CITATION
Northrop's Harry Clagget with Brown & Root-Northrop honor.

USAF Honors Northrop



COMMEMORATIVE MEDAL marking 50th anniversary of the USAF Institute of Technology was presented to Northrop in appreciation for its role in the Education With Industry program. Major Lawrence Michalove, right, and Captain Gerald Francis, currently in training at Northrop, present medal to F. W. Lloyd, Northrop vice president and Aircraft Division general manager, as Colonel Robert Fuqua, Northrop AFPR looks on. Forty-one USAF-IT students have trained at Northrop since 1952.

Bill Westcott's Suggestion Earns Incentive Award

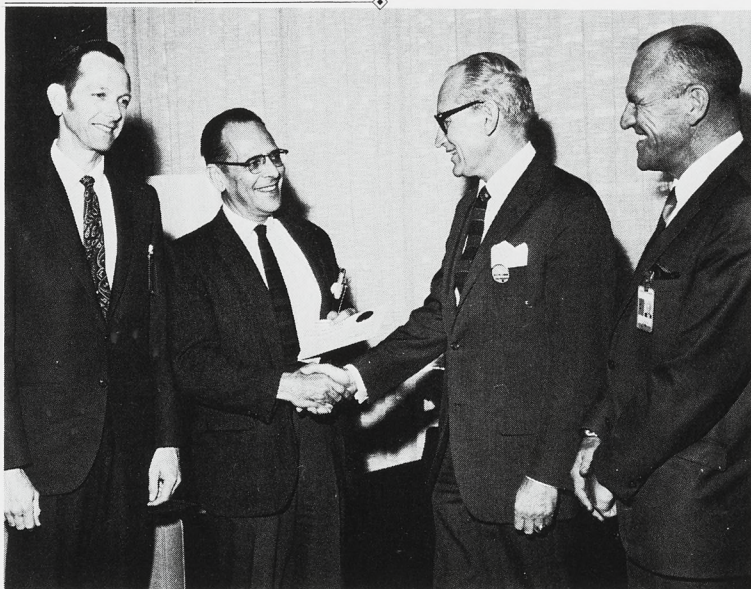
Several novel aspects are involved in the outstanding \$1,251 Northrop Employee Suggestion Award paid recently to Northrop's W.W. "Bill" Westcott.

Aside from the noteworthy

payment to Mr. Westcott, the award-winning suggestion included these features: the U.S. Air Force realized an annual savings of some \$125,190 from the idea; Northrop earned a \$12,519 Value Engineering Incentive award from it; and Mr. Westcott submitted the idea while employed by the Aircraft Division, but is receiving payment as an Electronics Division employee.

Mr. Westcott's suggestion involved the set of technical orders (called "G" files) previously forwarded with each Northrop T-38 delivered to the USAF and subsequently updated periodically with the latest information. This meant as many as 80 or more complete sets were being maintained at bases with large numbers of the supersonic trainer.

He proposed that only a limited number of sets be delivered with the aircraft to each base. Because the sets were being provided under contract, Northrop offered his idea to the USAF in the form of a Value Engineering Incentive Cost Proposal. Subsequent approval meant a return to Northrop of 10 per cent of the Air Force's realized savings for the first year which made possible the payment of Mr. Westcott's Employee Suggestion Award.



EMPLOYEE SUGGESTION AWARD PRESENTATION
Electronics Division's Bill Westcott, left center, receives award from W. E. Woolwine, Aircraft Division vice president, as Wendell Harter, left, and Paul von Essen look on.

Transport Aircraft Operations Cited for Flight Safety Record

Northrop Corporation's Transport Aircraft operations and the men who man them have earned a round of special honors for accident-free flying.

The National Business Air-

craft Association issued a special citation commemorating 2,757,900 miles flown by the Transport Aircraft fleet "without an accident involving damage to property or injury to persons."

Individual citations were also presented to transport pilots for accident-free miles flown which acknowledge the pilot's cumulative miles.

The pilots, with accident-free miles flown in parenthesis, are: Edward W. Knitter (1,632,729); Jack W. Miller (1,540,657); Edward H. Hahn (1,265,875); and William P. Brake (781,625). Tom O'Malley had earned a similar award previously for 688,351 accident-free miles.

Northrop transport pilots log a majority of their miles in daily shuttle operation between Hawthorne and the Antelope Valley (Palmdale and Edwards AFB). This involves flying in areas having one of the heaviest concentrations of flights in the nation.

SAVINGS BONDS INTEREST UPPED

United States Savings Bonds, available to all Northrop employees through systematic weekly payroll deductions, now earn interest at a rate of five per cent. The old rate was 4.25 per cent.

The new 5 per cent rate applies to all outstanding Series E and H Bonds sold on or after June 1, 1969, if held to maturity. The higher rate also applies to older bonds.

That is, beginning with the first semi-annual interest period starting on or after June 1, 1969, rates on outstanding E and H Bonds will be increased to yield five per cent.

Tax Change Drops Rate

The new income tax law signed by the President on Dec. 30, 1969, provides for a reduced surcharge and slightly reduced tax withholding rates.

However, because of the year-end holiday, Northrop found it necessary to print January 9 paychecks before the end of last year.

Like many other companies, Northrop found it impossible to recompute to the new rates and still make check payment on the due date. However, the new 1970 withholding rates were reflected in all paychecks delivered January 16.

The small amount over withheld from some January 9 paychecks is a credit against 1970 income tax liability and will be reflected in 1970 W-2 Forms.

Letters Urged to Aid U.S. Prisoners of War

All Northrop employees this week were urged to join in a nationwide letter writing campaign seeking more humane treatment of U.S. prisoners of war by the government of North Vietnam.

The campaign was endorsed by Thomas V. Jones, Northrop president, who asked everyone to make his feelings known in "this tragedy of the forgotten Americans."

The prisoners, with estimates of their numbers ranging from 800 to 1,400, are the subject of insensitive and callous cruelty. The North Vietnamese refuse to identify their prisoners or allow them communication with their families in the United States.

This cruel treatment is compounded by the reported handling of U.S. prisoners, primarily airmen. Reports from the few escaped or freed prisoners tell of physical torture, near starvation and mental an-

guish—parading prisoners through towns where they are abused by civilians, being allowed to write letters which, unknowingly, are never mailed, little or no treatment of serious wounds and injuries, and prolonged detention in solitary confinement.

Certainly mistreatment such as this transcends individual feelings toward the war and U.S. foreign policy. This is especially underscored by the fact that North Vietnam and 119 other nations signed the Geneva Convention in 1957 promising to identify prisoners, release sick and wounded, and allow proper flow of letters and packages.

Noting that North Vietnam government officials may respond to U.S. public opinion, Mr. Jones said:

"We believe we can get results with an overwhelming flow of letters appealing for more humane treatment of prisoners and for communications with their

families," Mr. Jones said.

He urged Northrop personnel, as individuals, to write to the North Vietnamese directly.

Letters may be addressed to Xuan Thuy, chief, North Vietnam Delegation, Paris Peace Talks, Paris, France (a 20-cent airmail stamp). Or they may be addressed to President, Democratic Republic of Vietnam, Hanoi, North Vietnam (via Hong Kong) (a 25-cent airmail stamp).

Letters may also be sent to representatives of foreign nations and newspapers and magazines in foreign countries.

Officials suggest that letters should be brief, written in easy English or French and avoid being abusive. They should state the writer's concern for the well-being of U.S. prisoners held by the North Vietnamese.

* * *

HERE ARE SAMPLE LETTERS FOR YOUR USE

While employees joining the Northrop letter-writing campaign on behalf of U.S. prisoners of war are urged to use their own thoughts in composing letters, Northrop News has prepared sample letters which may be of some help to those who feel strongly enough to write.

"Your Excellency:

I am deeply disturbed about the condition of American prisoners of war held in North Vietnam and by the failure of your government to adhere to the provisions of the Geneva Convention concerning humane treatment of prisoners. I ask in the name of humanity that you furnish to the International Red Cross a list of all prisoners and that you permit an inspection of prisoner of war facilities by the Red Cross or other impartial humanitarian agencies.

Sincerely,
(your name)"

"Your Excellency:

The failure of your government to transmit to the Internal Committee of the Red Cross the identities of American servicemen being held prisoner of war is a violation of the Geneva Convention. I urge you to make this information available and generally to abide by the terms of the Geneva Convention concerning the humane treatment of prisoners of war.

Sincerely,
(your name)"

"Your Excellency:

I am concerned that numerous American prisoners of war, held in Vietnam or by the Viet Cong, are being isolated from contact with the outside world. Under provisions of the Geneva Convention, which your government endorsed in 1957, all prisoners should be given complete freedom to write to their families, and to receive all letters from them promptly. I urge you to abide by the provisions of the Convention.

Sincerely,
(your name)"

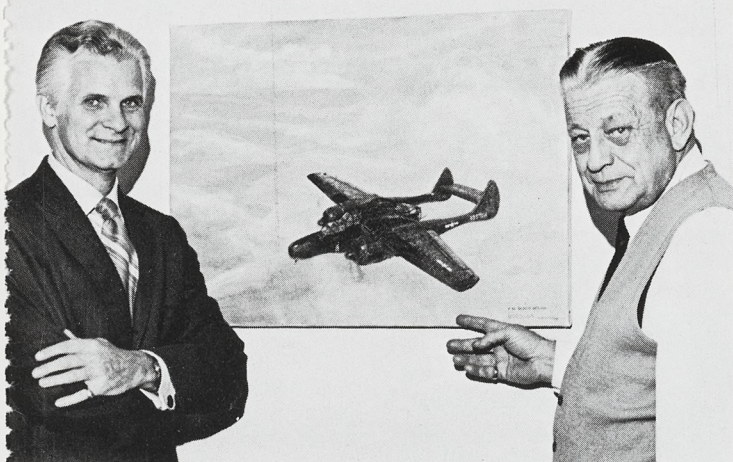
For those employees who wish to induce their friends, neighbors, and relatives to write letters also, a limited number of copies of this issue of Northrop News may be obtained by written request. Send your requests to Northrop News, Organization 170, Zone 62, Hawthorne.

AFRICAN TOUR

An informative meeting for Northrop personnel interested in an NRC-sponsored tour of Africa will be held at 7:30 p.m., Jan. 30 at the NRC Clubhouse, Hawthorne.

The 28-day excursion departs Aug. 18 and returns Sept. 14. It includes stops at a majority of Africa's scenic wonders. The cost is \$1,895 per person.

A P-61 For Posterity



'BLACK WIDOW' FOR ART COLLECTION
HARP SMITH, right, of the Aircraft Division, provided historical pictures and drawings from which Lt. Col. George (Bob) C. Bales, USAF ret., painted this Northrop "Black Widow" in oils. Painting will go in the USAF Art Collection in Washington, D.C.

Sixteenth Annual Bowling Meet Draws 239 Keglers

More than 239 Northrop men and women bowlers competed for 33 trophies and \$284 in prize money at the 16th Annual Northrop Christmas Bowling Tournament, held Dec. 27-28, at Missile Bowl-Gardena.

Events winners were:

Men's Singles-A, Art Meunsterman and Ed Fialkowski (tie); Men's Singles-B, Don L. Smith, Electronics; Women's Singles-A, Ernestine Llamas, Aircraft; Women's Singles-B, Jo Ann Pask, Electronics; Men's Doubles-A, Jesse Diaz and Carl Fujii, Aircraft;

Men's Doubles-B, Frank Thomas, Electronics, and Ray Hofius, Aircraft; Women's Doubles-Open, Connie and Marge Hinz, Electronics; Mixed Doubles - A, George and Julie Baldwin, Electro-Mechanical; Mixed Doubles-B, John and Jo Ann Pask, Electronics.

High Scratch Series: Men's-A, Dick Elstran, Aircraft; Men's-B, Don Beastron, Aircraft; Women's-A, Audrey Greco, Aircraft; Women's-B, Rosemary Aguilar, Aircraft.

(See BOWLING, Page 5)

Northrop Spurs Mail Campaign To N. Vietnam

To expedite a letter-writing campaign to North Vietnam, Northrop Corporation will provide the necessary 20 or 25-cent overseas airmail postage.

Letter writers must present their letters, either in person or by intra-office mail, to clerks at mail offices in the Aircraft, Electronics, Electro-Mechanical and Ventura Divisions.

The letters will be returned to the writers for mailing at home post offices.

If the addressed envelopes are sent to postal offices by intra-office mail the sender should be certain to include his return office number.

Also, the postal rates of 20 or 25 cents are based upon a half-ounce or one sheet letter. Messages should be brief.

* * *

Hanson Tells of Friendship With Captured Pilot

At least one Northrop man is the longtime friend of a U.S. Air Force pilot, Robert Jeffrey, currently being held incommunicado as a prisoner of war by the North Vietnamese.

John Hanson, of the Manufacturing Research and Development group at the Aircraft Division, first met Lt. Jeffrey in 1948. Mr. Hanson was an Inglewood Cub Scoutmaster and 9-year-old Robert was in his Cub pack.

Close Ties

"As time passed I had him in my Boy Scout troop, too," Mr. Hanson recalls. "Bob became very close friends with my son, Jay (now 31) and he used to come over and visit frequently."

Lt. Jeffrey is a graduate of Northrop Institute of Technology and on one of his tour of duties, he trained Nationalist Chinese in T-38's.

Jet fighter pilot Lt. Jeffrey was shot down in December 1965 over North Vietnam. Thirteen months later his wife learned he was a prisoner via a U.S. State Dept. communique. Mrs. Jeffrey, who has a five-year old son, has never heard from her husband.

Mrs. Jeffrey, in efforts to learn the condition of her husband, was one of the first four prisoners' wives to take their case—in vain—to North Vietnamese in Paris.

Helping Out in Distant Places



NORTHROP SUPPORT OPERATIONS Department employees W. G. Eaton, left, and C. E. Aven, center, present a check for the 1969 Peninsula United Fund campaign to R. V. Braig, contractor relations officer, NASA Langley Research Center, Virginia. The check represents a portion of pledges made by Northrop Employees assigned to contracts at NASA Langley.

Planning AIAA Symposium



W. E. WOOLWINE, Aircraft Division vice president, will chair the Second Annual Aircraft Design and Operations Symposium, AIAA, in July. As Technical Program chairman, Mr. Woolwine, center rear, met with representatives of many firms to map plans. Northrop men taking part included Robert W. Bratt, Dr. Harold J. Coleman, Rahim Lavi, Dr. Nigel Pridmore-Brown, Walter W. Watson and Charles W. Eyres.

'MAROONED' FIRST NRC THEATRE PARTY

"Marooned — the saga of Ironman One, the United States' first spaceship to be in serious trouble — will be the attraction of Northrop's first theatre party of 1970.

The affair will be held at 5

p.m., Jan. 31, at the famous Egyptian Theatre on Hollywood Boulevard. Regular \$3.50 loge seats will sell for \$2.80.

Tickets are available at all Northrop ticket outlets on a first-come, first-served basis.

ARROW MAKING

Ancient Art Goes Modern

The most perfect missile in the world is a flight arrow, according to archer Mort Mendels, and the same precision goes into making them that goes into building precision aircraft.

Flight arrows are special items used in flight archery shooting and differ radically from arrows used by archers for hunting and target shooting. They are built for obtaining distance. Most flight archers have to build their own because they are not readily available.

Those constructed by Mort Mendels actually look like a slender missile complete to plastic fins which take the place of feathers in standard arrows. They are built to such close tolerance that he has to use a dial gage because a standard micrometer

is not sufficiently accurate for the precision needed.

Mr. Mendels has been interested in archery for 45 years. He made his first bow in 1924 as a child in Redlands. He participated in target shooting and hunting until 1938 when he was introduced to flight archery. This variation of the sport is based upon an ancient Turkish competition.

In his private arrow collection are several Turkish tournament arrows which were in use about 200 years ago. His study of the art also led him to make and use a Turkish thumb ring in his own tournament shooting. His use of it at a recent California State Flight Archery Meet caused considerable interest.

First NF-5's For The Netherlands



FLIGHT OF FOUR—The first four Northrop NF-5B aircraft to be delivered to the Royal Netherlands Air Force approach their final destination following a Polar Route delivery flight from Canada. The four are the first of 105 NF-5's being built in Canada, under a licensing agreement, by Canadair, Ltd.

Discussing The Early Days



JOHN K. NORTHROP, a Northrop Corporation founder, left, center, chats with from left, Gordon Madison, Nick Linardos and Herman Bach at a pre-Christmas gathering of present Northrop employees who are alumni of Northrop Institute of Technology. Event drew 60 people, about half of the known NIT alumni at Northrop. Talk centered around early company days and products.

Retired Man, Wife Observe Anniversary

William L. Harper, who retired from Northrop in 1961, and his wife recently celebrated their 50th wedding anniversary with an open house at their home in Glendale.

Mr. Harper worked in the Aircraft Division's Paint and Process section for seven years until a heart condition forced his retirement.

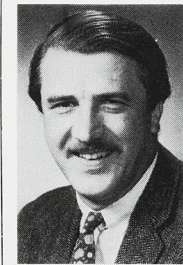
The Harpers said they still keep up with Northrop activities through the Northrop News and Northrop Retirement Newsletter.

The couple was married in 1919, in McKinney, Tex., after Mr. Harper had completed his U.S. Army service during World War I.

Dr. Lissaman to Direct Continuum Mechanics Lab

Dr. Peter B. S. Lissaman has joined Northrop Corporate Laboratories as director of the Continuum Mechanics Laboratory.

In announcing the appointment, Dr. D. A. Hicks, Northrop vice president, Corporate Research and NCL manager, said Dr. Lissaman will be responsible for guiding independent and contractual research in continuum mechanics.



Dr. Lissaman

Current independent programs include programs in fluid mechanics, aerodynamics, fluidics, intermittent gas heating techniques, and heat pipe applications.

Dr. Lissaman replaces Dr. Alan Kistler, who has accepted a post as professor of Aerodynamics and director of the Gas Dynamics Laboratory at Northwestern University.

Prior to joining Northrop, Dr. Lissaman served as assistant professor of Aeronautics at the California Institute of Technology where he taught graduate courses in applied aerodynamics and vehicle design and supervised work in Cal Tech's 10-foot wind tunnel and research programs in theoretical and experimental subsonics.

From 1958 until 1962, Dr. Lissaman was on the faculty of the U.S. Naval Postgraduate School, Monterey, teaching courses in aerodynamics, structures and flight test.

He has industrial experience both in structural design and aerodynamics with two large aircraft companies and was consultant on aircraft aerodynamics to McDonnell Douglas for many years, as well as numerous other industrial firms, and departments of the U.S. Government on both structural and fluid dynamics problems.

Dr. Lissaman received a B.S. degree in mechanical engineering from Natal University in South Africa. He earned an M.A. in mathematics from Cambridge University. He earned an M.S. and a Ph.D. both in aeronautics, from the California Institute of Technology.

MOUNTAINEERS SET HILL CLIMB

The Northrop Mountaineers have scheduled a two-day climb for beginning and intermediate third class practice, Jan. 31-Feb. 1, at Joshua Tree National Monument Park, north of Palm Springs.

The weekend will include a Saturday night campfire party and cross-country rock climbing practice through the Wonderland of Rocks area.

Many good photographic opportunities also will be available, according to Bob Van Allen, leader of the event.

For more information call Mr. Van Allen, ext. 2911, or Ken Ferrell, assistant leader, on ext. 2001.

WE ASKED THEM—How Did You Spend Your Long Yearend Holiday?



John Welsh, Standards Laboratory engineer, Aircraft:

Well, for the first time in three years all four of my sons were home for the Christmas holidays. Two of them were recently discharged from the service and the other two boys are still on active duty. It was just like old times.



Carol De Pauw, secretary, Aircraft:

I didn't do anything specific. I usually travel some place every year, but this time I just stayed in town and caught up on a lot of things I had neglected over the past year.

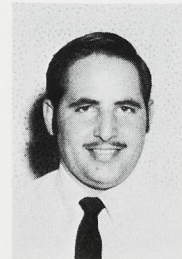
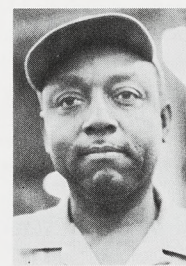
Dorothy Puder, senior clerk, Electro-Mechanical:

I always look forward to our extended year-end holiday because it gives me time to spend with my family and to do the many things I have put off the rest of the year. Being a native Californian and never having spent much time in the snow, I squeezed in a trip to the San Bernardino Mountains.



Matt Williams, machinist, Electro-Mechanical:

Christmas is the time to stay at home and I stayed there. I tried to do a little work about the house, but mostly I just enjoyed my family of six.



Andy Demetry, systems test technician, Electronics:

I had a so-so holiday. My daughter had the measles for about a week so we had to stay home. After she recovered, we spent the rest of the holiday in Las Vegas.



Dorothy Baldwin, telephone operator, Electronics:

I spent the long yearend holiday just plain relaxing. Our whole family visited for the traditional Christmas dinner, then my husband and I went off to Las Vegas to celebrate our 30th wedding anniversary.

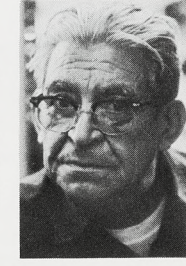
Bonnie Stewart, secretary, Ventura:

At home. One year I went to Hawaii but this year, as in most, I was at home for Christmas. My main project, however, was getting my car painted. You can't do that when you're working.



P. N. (Shorty) Duran, stock storekeeper, Ventura:

At home loafing. Most of my family had promised to come and visit but their plans changed so I spent the holiday at home playing football with my two grandsons.



Classified

Classified ad service is provided free of charge to all Northrop personnel. Ads for agencies, commercial enterprises and private businesses are not accepted. The Northrop News reserves the right to edit or omit ads. Obtain ad form C67 from organization clerk and mail ad to Northrop News, 170, zone 62. Ads are limited to one item and one ad per person each issue. Deadline is noon Wednesday, one week before publication.

Automobiles For Sale

Austin Healey, 1969 Sprite, 4-spd., d/brakes, tach, soft top, \$1,800. 213-324-9076. A
Falcon, 1963 Futura, 4-spd., 6 cyl., r/h, \$375. 213-391-7781. A
Chevrolet, 1956, rebilt. eng. & trans., \$275. 213-323-1097. A
Triumph, 1966 Spitfire, 45,000 mi., \$950. 213-328-3306. A
Opel Kadett, 1964, \$250. 213-532-9491. A
Mercury, 1957 2-dr., 3-spd., o/drive, \$450. 213-295-0778. A
Fairlane, 1967 G.T., 390 cu. in., 4-bbl., 4-spd., d/drakes, \$1,800. 213-672-3929. A
MGA, 1958 Roadster, eng. recently o/hailed, \$950. 213-423-1363. A
Dune Buggy, extra strong fiberglass body, w/doors, street legal, \$1,600. 213-396-6739.
Austin Healey, 1960 3000 Roadster, \$700. 714-892-1401. A
Rambler, 1964, 4-dr. Classic, 6 cyl., \$525. 213-372-6875. A
Falcon, 1963, 4-dr., \$450. 213-759-4391. A
Pontiac, 1967 Bonneville, 4-dr., auto. trans., all power, a/c, \$2,175. 213-372-8903. A
Mustang, 1966 Dempsy-Wilson 707 cams, Holly 4-bbl. carb., Edelbrock high rise manifold, 4-spd. floor shift, \$1,200. 213-671-3562. A
Dune Buggy, shortened Ford, 6-cyl., truck running gear, canvas top, \$500. 213-534-3410. A
Van, 1969 Dodge A-100, \$2,050. 213-374-5611 after 6 p.m.
Chevrolet, 1958, 6 cyl., 3-spd. stick/over-drive, \$150. 213-327-6373. A
Oldsmobile, 1963 88, 2-dr. h/top, air, p/s, p/b, \$595. 213-328-0806. A
Austin Healey, 1964, 3000 MK III, new top, o/d, r/h, \$1,600. 213-456-3019. A
Mustang, 1966, a/c, p/s, V-8, \$1,250. 213-377-3532. A
Station Wagon, 1969 Volkswagen Squareback, AM radio, \$2,100. 213-437-7927. A
Buick, 1960 LeSabre, 2-dr. h/top, auto. trans., recently o/hailed, radio, \$300. 213-677-9215. A
Station Wagon, 1961 Ford Falcon, new eng., r/h, \$250. 213-296-0863. A
Station Wagon, 1965 Ford Country Squire, p/s, p/b, 392 cu. in. eng., \$1,590. 805-482-6274. A
Ford, 1965 Galaxie 500, 2-dr. h/top, auto. trans., p/s, a/c, \$900. 213-757-1218. A
Cadillac, 1962, 79,000 mi., \$800. 213-644-6274. A
Truck, 1966 Ford, 1/2-ton, 8' bed, \$1,050. 213-644-2020. A
Truck, 1949, 3/4-ton Chev., hvy. duty, \$275. 213-675-2159. A
Ford, 1965 Galaxie 500 cpe., p/s, AM-FM radio, \$1,095. 714-968-5343. A
Oldsmobile, 1967 Delmont 425 4-dr. sedan, pwr. d/brakes, r/h, \$1,650. 213-644-1624. A
Station Wagon, 1965 Chevrolet Impala, p/s, p/b, r/h, a/c, \$1,495. 213-320-8564. A
Mustang, 1965 2-dr. h/top, auto. trans., r/h, 6-cyl., \$995. 213-644-8081. A
Camaro, 1968, 327 eng., auto., console, \$1,800. 213-374-2117. A
Falcon, 1966 Futura, 2-dr. spt. cpe., p/s, a/c, V-8, \$1,225. 714-828-6719. A
Peugeot, 1959, eng. o/hailed, \$180. 213-326-6195. A
Thunderbird, 1957, \$1,095. 213-465-8684. A
Buick, 1959, r/h, all power, \$135. 213-542-4245. A
Chevrolet, 1960 Impala, 2-dr., V-8, p/b, r/h, \$225. 213-830-7997. A
Volkswagen Camper, 1968, AM-FM radio, \$1,895. 213-438-7859. A
Pickup, 1960 Ford, 1/2 ton, \$300. 213-676-6298. A
Pickup, 1956 Ford, wood bed, \$150. 213-320-4712. A
Station Wagon, 1967 Volkswagen Squareback, radio, \$1,495. 213-430-7388. A
Ford, 1965 500-XL, 372 cu. in., rebilt. trans., p/s, a/c, r/h, \$1,400. 213-943-9963. A
Mercury, 1963 Meteor, auto., V-8, r/h, 4-dr., p/s, \$150. 213-293-4549. A
Toyota, 1966 Corona, 4-dr., sedan, \$850. 213-676-8539. A
Volkswagen, 1966 Fastback, \$1,275. 213-376-5139. A
Rambler, 1962, 2-dr., auto. trans., r/h, \$200. 213-676-4464. A
Oldsmobile, 1967 Toronado Deluxe, full power, a/c, \$2,700. 714-968-1729. A
Rancher, Falcon, 8-cyl. 260 eng., 4-spd. trans., r/h, \$695. 213-377-5836. A
Chevrolet, 1963 Impala, 2-dr. h/top, 283 eng., \$900. 213-677-1643. A
Mercury, 1966 Cyclone, p/s, console shift, r/h, \$1,300. 213-670-4643. A

Automobiles For Sale

Ford, 1960 convt., \$250. 213-675-7645. A
Station Wagon, 1967 Pontiac Bonneville, 9-pass., a/c, power d/brakes, p/w, p/s, \$2,450. 213-457-2949. A
Karmann Ghia, 1967, \$1,495; Pontiac, 1968 LeMans, \$1,595; Chrysler N.Y., 1964, \$400; Pontiac, 1969, Grand Prix, \$3,695; Chev. 1967, Impala, \$1,345, all minimum bids, Credit Union ext. 1117. A
Jaguar, 1964 XKE-type, wire whls., \$1,995. 213-374-7165. A
MGB, 1967 GT, wire whls., \$1,950. 714-644-2887, 213-329-2926. A
Ford, 1967 Fairlane, 4-dr., 200 cu. in. eng., 3-spd. synchro. trans., \$1,250. 213-832-2074. A
Chevrolet, 1969 Chevelle SS 396, 350 h.p., 4 spd., p/s, p/b, 4-11 posi., many extras, \$2,950. 213-545-2180. A
Corvair, 1965, rebilt. eng. & starter, \$650. 213-830-8873. A
Volkswagen, 1969, AM-FM radio, warranty active, \$1,900. 213-542-5077. A
Volkswagen, 1964 van, 1967 eng. & trans., stereo, panelled, \$1,395. 213-862-3027. A
Toyota, 1967 Corona, 4-dr., AM-FM radio, auto., \$1,100. 213-573-1760. A
Pontiac, 1966 386 Tempest, 2-dr. sedan, 44,000 mi., auto., \$1,550. 213-672-5872. A

Household Items For Sale

Sofa, contemporary style, olive gold, \$100. 714-774-3389. B
Dinette Set, chrome, \$35. 213-534-5287. B
Refrigerator, apartment size, 9 cu. ft., \$35. 213-832-1684. B
Couch, & chair, Danish modern, blue/green burlap, \$75. 213-379-4881. B
Stove, 30" Kenmore elec. w/rotisserie, copertone, 6 yrs. old, \$50. 213-375-7701. B
Bed, dble., box spring, mattress & frame, \$25. 213-327-0447. B
Carpet Sweeper, Bissell, \$5. 213-672-5545. B
Dinette Set, gray & chrome, table & 4 chairs, \$30. 213-534-5558. B
Bedroom Set, Century cherry wood, his & her dresser, 2 bedside stands, queen size bed & h/board, \$375. 213-672-1968. B
Sofa, 7 1/2', low profile, 3-cushion, modern, green tweed w/arms partly of wood, 8 mos. old, \$100. 213-542-5664. B
Refrigerator, Westinghouse, crosstop freezer, \$50. 714-897-2007. B
Crib, mattress & spring, \$15. 213-675-6668. B
Drink Blender, Waring, turquoise, \$8. 714-846-3275. B
Breakfast Nook, ivory, 2 stools, \$300. Box 101. B
Sewing Machine, Morse Deluxe Precision, \$35. 805-483-5644. B
Range, Wedgewood, 4-burner, \$60. 213-379-2980. B
Freezer, 17 cu. ft. chest-type Coldspot, 4 yrs. old, \$165. 714-826-2209. B
Rugs, 9' round, dk. red looped wool w/fringe & 9x9 2-tone dk. & light green nylon shag, \$40 ea. 213-677-4328. B
China Cabinet, period, dk. wood finish, approx. 43" wide, \$30. 213-673-1133. B
Stove, & refrigerator, gas, \$40. 213-644-7860. B
Stove, apt. size, gas, \$15. 213-677-8718. B
Sewing Machine, Kenmore, 2-dwr. cabinet, \$55. 213-326-9510. B
Washer-Dryer Comb., Lady Kenmore, all elec., white, 2 1/2 yrs. old, \$150. 213-679-5243. B
Martini Set, 10-pc., incl. pitcher, 8 stemmed glasses & stirrer, \$7.50. 213-474-5726. B

Miscellaneous For Sale

Bowling Ball, Columbia 300, 12 lb., w/bag, \$15. 213-370-9037. C
Wheelchair, folding Jennings, \$30. 213-375-6467. C
Coat, ladies borgana, beige, size 10, \$50. 213-784-9339. C
Watch, Accutron Astronaut, 2 yrs. old, \$50. 213-392-7098. C
Own-your-own Apt, 2-bdrm., 2 baths, all elec., dps., cpts., patio, pool, party room, hobby shop, enc. 2-car gar., newly decorated, adults, can carry papers, \$24,000. 213-327-8047. C
Camera, Canon, 35 mm SLR, f1.2, 58 mm lens, \$125. 213-638-4954. C
Toolbox, Gerstner, \$45. 213-329-9809. C
Radio Control, 3-channel proportional w/model speedboat & 0.35 marine eng., \$135. 213-370-7092. C
Poodles, 2 registered miniature, black, females, 8 wks. old, had shots, \$50. 213-379-7818, 213-370-0435. C
Law Course, complete California La Salle, \$325. 213-545-6719. C
Belt Massager, 2 speeds, used approx. 15 times, \$35. 213-679-5677. C
Pool Table, 4'x8' w/balls, \$160. 213-534-1028. C
Turntable, Weathers, w/professional pickup, \$110. 213-377-7670. C
Bicycle, boy's, hvy. duty Schwinn, \$55. 213-676-3665. C
Rearend, for '55-'64 Chev., 4.11, \$35. 213-325-3675. C
Train Set, N-gauge, eng. & cars, switches & 50' track on 4'x8'x6" lightweight layout w/access., \$50. 213-679-6610. C
Piano, upright, \$150. 213-755-7521. C
Office Desk, 6-dwr., 6', metal, & uphol. swivel armchair, \$80. 213-823-7121. C
Bathroom Sink w/faucets & wall brackets, \$15. 213-374-4703. C
Books, Harvard Classics, complete set w/index, \$75. 213-291-9394. C

Miscellaneous For Sale

Stroller & playpen, \$19. 213-323-4729. C
Bicycle, 5-spd. Sting Ray, \$35. 213-675-6020. C
Playpen, wooden, \$15. 213-377-7317. C
Acreage, 52 acres, 3-bdrm. house, will divide, 1 1/4 mi. from recreational river in Grants Pass, Ore., \$35,000 or \$375 acre. 213-679-6917. C
Acreage, 5 acres, Antelope Valley, near paved road, \$50 dn., \$50 mo., \$5,000. 213-378-1026. C
TV, Philco b&w, 18" deluxe table model w/twin spkrs., UHF/VHF, \$50. 213-675-8673. C
Surfboard, 6'10" Takayama Scorpion, \$65. 213-374-8608. C
Clarinet, La Sette, w/case, \$60. 213-532-7846. C
Camera, 35 mm Honeywell-Pentax-Spotmatic, f1.4 w/skylite filter, flash gun, \$200. 213-375-7722. C
Cemetery Lots, Inglewood Park, Resthaven plot near chapel, 2 dble. interment, \$1,500. 213-754-7703. C
Component Stereo System, Fisher 200T tuner, Dual 1019 turntable, 2 Kaye-Halbert spkrs., Shure V-15 cartridge, \$550. 213-679-3068. C
Pup, Yorkshire terrier, male, AKC, all shots, champ. sire, \$125. 714-529-8082. C
Ham Receiver, Hallicrafters SX-111, \$95. 213-672-0636. C
Guitar, Fender Mustang & case, \$150. 213-833-5755. C
Tires, 2 wide oval, G70-14, 3/4" w/w, \$50. 213-596-8947. C
Toy Box Seat, 3' long, \$8. 714-531-4958. C
Ham Transmitter, Johnson Viking desk kilowatt, \$400. 714-633-1037. C
Pups, boxer, champion sired, 3 males, 1 female, \$75 ea. 213-542-5769. C
Bicycle, boy's 26" 3-spd., \$25. 213-329-5855. C
Wig, auburn, 100% human hair, worn twice, \$25. 714-521-5359. C
Tires, 4 Goodyear mounted on 14" Ford rims, \$60. 213-671-7875. C
Bear Target Bow, HC30, 35 lbs. w/stabilizer, wrist sling, 1 doz. alum. 2216 arrows, carrying case, \$150. 213-379-8594. C
Skis, head, Giant Slalom 210's w/out bindings, used 1 season, \$95. 213-472-0542. C
Recorder, Aikai XV, portable, rechargeable batt., 4-track stereo, 4-spd., 3 heads, \$160. Box 102. C
Lot, Salton City, near sea, low dn., \$4,800. 213-384-0918. C
Motor Scooter, Allstate Putsch, \$100. 213-831-3737. C
Ski Sweater, girl's hand knit, made in Norway, size 12-14, oyster white w/red, green & black trim, \$10. 213-377-8518. C
Relaxacisor, used 10 hrs., \$100. 213-644-2154. C
Pups, German shepherd, black, tan & silver, \$35-\$90. Box 103. C
Acreage, 20 acres, in Calico, all mineral rites, low dn. pymt., \$150 acre. 213-644-2375. C
Rifle, 30-06 Winchester, Model 70 sport stock, Mauser action, 2 boxes ammo, \$100. 213-679-9335. C
Guitar, Gibson deluxe, amp., remote foot pedal control & standing mic., \$200. 213-457-7409. C
Typewriter, portable Royal std., carrying case, \$35. 213-425-5168. C
Radio Controls, for boats or airplane, complete, \$75. 213-371-6758. C
Dog, AKC Labrador Retriever, female, \$75. 213-881-2604. C
Telescope, Tasco 60X refractor, \$18. 714-528-3517. C
Shotgun, 12 ga. Remington 1100 auto., skeet gun, \$140. 213-327-4585. A
Valve Springs, Z-28, coral colored, retainers, keepers, \$20. 213-323-6786. C
Accordion, Castle, black, \$250. 213-323-1880. C
Home, custom bilt, 2-story, near schools, swim. pool, patio & dressing room, det. 2-car gar. & workshop, \$32,500. 213-632-2642. C
TV, 23" b&w, AM-FM phono stereo, \$65. 213-644-9394. C
Boat, 15', 70 h.p. Mercury, heavy trailer, stern dr., extras, \$800. 213-786-6784. C
Wig, med. length, dk. brown, human hair, \$30. Box 104. C
Trailer, 1-whl., about 3 1/2'x4 1/2', with ext. sides & fitted wooden top, \$25. 213-545-6360. C
Developers, photographic, Printol improved #72, \$1 gal. 213-673-4280. C
Playhouse, child's 6x6, \$25. 714-842-1733. C
Camper, 10', cabover, fully self-contained, \$900. 213-676-0573. C
Wedding Ring Set, lady's white gold, interlocking, 1/2 c. diamond & smaller stones, size 7 1/2, \$200.50. 213-679-7879. C
Turntable, & AM-FM stereo setup, 2 spkrs., \$135. 213-370-4226. C
Parrots, talking Panamanian, male & female, green bodies, yellow heads, w/cage, \$100. 213-274-0589. C
Lathe, 12" Craftsman metal-working, w/3-jaw chuck, centers, motor, tool holder, other access., \$250. 714-838-1519. C
Motorcycle, 1966 B.S.A., 650 cc, \$800. 213-676-9939. C
Pup, Doberman, AKC, \$200. 714-633-7930. C
Inspection Tools, precision, mics, calipers, indicator, gages & misc. tools, Kennedy box, \$200. 213-675-2832. C
Trailer, Northwest Coach, 15', sleeps 5, 3 yrs. old, awning & equalizer hitch, \$900. 213-447-5318. C
Mini Bike, Honda, used 2 days, \$200. 213-327-8927. C

Miscellaneous For Sale

Airplane, 1969 Cessna 150 Commuter, full I.F.R., dual 360-chnl. comm., dual omni's, glide scope, many extras, \$900 & take over \$255 mo. pymts., \$9,000 approx. balance. Box 106. C
Boat, Sears 12', alum. w/3 h.p. motor & oars, \$200. 213-830-2792. C
Motorcycle, 1969 Yamaha, DT-1B, \$625. 213-671-1577. C
Pups, Great Dane, AKC, 2 mos. old, \$150. 213-674-6409. C
Hull Boat, 33', Chrysler Crown eng., \$1,500. 213-672-0235. C
Fish Tank, 5-gal., incl. fish, pump, filter & htr., \$12. 213-376-4586. C
Camera, Keystone, 8 mm zoom, \$40. 213-325-1535. C
Jogging Exerciser, Sears, \$45. 213-377-3487. C
Tuner, FM, Fisher FM90X, in mahogany case, \$45. 213-326-8455. C
Travel Trailer, 22 1/2' Ken Craft, completely self-contained, tandem wheels, \$3,000. 213-445-3009. C
Piano, cut-off upright, maple, \$75. 213-679-4293. C
Tent Trailer, 1967 Apache, sleeps 6, used 3 times, \$500. 213-632-6254. C
Boat, 8', fiberglass, handles up to 12 h.p. motor & boat trailer, hvy. duty, 14" whls., \$75 ea. 213-378-7642. C
Motorcycle, 1965 Honda 170 trail bike, \$180. 213-532-9085. C
Motorcycle, 1967 Honda 50, \$125. 213-329-5459. C
Motorcycle, 250 BSA, dirt bike, \$300. 213-675-4038. C

Wanted to Buy

Motor, for Whizzer motor bike & access. 213-676-4632. D
Melodica, good condition, reasonable. 213-675-6397. D
Camping Trailer in good condition. 213-865-5133. D
Sewing Machine, elec., portable or cabinet. 213-225-6917. D
Outboard Engine, 5 to 10 h.p., under \$50. 213-927-8947. D
Head, Desmo, &/or Mach I-Mark III cam for 350 cc Ducati, late scrambler head prepared, reas. price. 213-672-7359. D
Darkroom Equipment in good condition. 714-635-7975. D
Golf Clubs, Sears glassshaft, irons & woods, short length. 213-328-1114. D
Ski Rack, w/locks preferred. 213-759-5717. D
Display Shelves, for knick knacks, for mounting on wall w/glass doors, either used or new unfinished or finished. 213-676-3050. D

For Trade

Frequency Synthesizer, 0.3-26 Mc steps of 10 cps, Navy type 0-274/SRT, 115 VAC 60 cps, trade for 2 meter gear. 213-421-0405. E

Rentals Offered

Lady wanted to share 4-bdrm., 2-bath home w/pool & spa, consider 1 child, Garden Grove, \$100 mo. 714-897-9407. G
Bachelor Apt, 1-bdrm., furn., cpts., dps., bltins, utils. pd., in Playa del Rey, \$169. 213-823-5526. G
Condominium Unit, in Mammoth Lakes, accommodates 4, living room w/fireplace, complete kitchen, sep. bedroom, sauna, \$25 night for 2; \$30 night for 4. 213-375-2622. G
House, 2-bdrm., cpts., dps., lge. fenced yard, workshop in rear, carport, stove, some furn. avail., water & trash pd., \$175 mo. 213-391-2040. G
House, 2-bdrm., 2-car gar., 10 min. from Northrop, \$140 mo. 213-755-2400. G
Cabin, Moonridge, Big Bear Lake, sleeps 10, avail. in Feb., family \$40 w/end. 213-839-3279. G
Cabin, Green Valley Lake, \$45 w/end; \$65 wk. 213-320-2002. G
Cabin, Big Bear Lake, \$30 w/end. 213-867-0662. G
Cottage, Ocean Beach, San Diego, near Mission Bay Park, \$25 w/end; \$50 wk. 714-826-2007. G
Apt, 2-bdrm., beach front, mature couple only, furn., \$175 mo. 213-379-9202. G
Cabin, Lake Arrowhead, 3-bdrm., 2 baths, sleeps 10, completely furn., \$150 wk., \$75 w/end. 714-528-2303. G
Cabin, Green Valley, \$25 w/end, \$50 wk. 213-324-9769. G
Home, 3-bdrm., h/wood floors, f/place, 3 miles from Haw. Electronics Div., \$200 mo. 213-675-6970. G
Apt, 1 & 2 bdrm., cpts., dps., bltins, closed gar., s/proofed, furn., \$145-\$175, unfurn. \$125-\$155. 213-375-9397, 213-375-2091. G
Cabins, Idyllwild, 1 & 2 bdrm., stream, patio, f/place, \$50 & \$90 wk., \$25 to \$35 w/end, 213-868-8040. G

GUN CLUB

The NRC Gun Club will hold its first meeting of 1970 at 7 p.m., Jan. 22, in the NRC Club-house to meet new members and plan activities for the coming year.

One event—already scheduled for Jan. 28 — is the Trophy Shoot, a 900 point aggregate match with 90 rounds of rim or center fire.

Rides and Riders

Rides Wanted

7 a.m. — 3:42 p.m.

Artesia & Pier Ave., Torrance. Starting Feb. 1. Dodie Lenhart, Aircraft ext. 2983, 213-677-8718.

7:30 a.m. — 4:15 p.m.

Santa Ana-Tustin-Orange to Hawthorne. R. B. Speed, Aircraft ext. 4541, 714-544-2261.

Rides Offered

7:30 a.m. — 4:15 p.m.

Santa Ana-Tustin-Orange to Hawthorne. R. B. Speed, Aircraft ext. 4541, 714-544-2261.

Rentals Offered

Apt, 2-bdrm., lower, unfurn., bltins, stove, no pets, close to Northrop, \$150. 213-676-7423.

Rentals Wanted

House, 2-bdrm., in Inglewood or Hawthorne, cpts., dps., have 17 yr. old son. 213-676-0430, 213-674-5221. H

Cabin, for 24 Jr. Hi-Y men & boys in Mt. Pinos or San Bernardino mountains areas. Box 105. H

Cabin or trailer on nearby lake, fishing & swimming a requirement, family of 3, preferably July-August. 213-581-5208. H

Parking Space, safe, inexpensive, for 18' travel trailer, San Pedro or P.V. area. 213-833-4191. H

Child Care

Child Care offered, my home, pre-school child, age 3-5. 213-675-1953. I

Personals

My family & I wish to express our deepest appreciation to all our friends at Northrop for the flowers & kind & thoughtful expressions of sympathy at the passing of my beloved father. EUNICE BLAIR & MARGIE & DAVE YARTER. L

We would like to extend our deepest appreciation to all our friends at Northrop for the flowers & kind thoughtful expressions of sympathy at the loss of our beloved mother. LEO DALTON & RUTH HARRIS. L

We wish to express our appreciation for the many expressions of sympathy from our Northrop friends upon the loss of our son, brother & husband, Stuart. CLIFF, VOLA & KENNETH BUNDY, CARYL SHEEAN & MRS. STUART BUNDY. L

I wish to express my deepest appreciation to all of my friends at Northrop for the flowers & the kind & thoughtful expressions of sympathy in the loss of my father. DEAN ZOLLINGER. L

I want to thank the Northrop Recreation Club for the lovely flowers which made my time in the hospital more pleasant. CLEO MORRISON. L

Ironing, my house, 10¢ a pc. 213-324-5824. L

747 Flight Praised By Editor

What is it like to fly in the world's largest commercial jetliner?

"All that's been written and said about the Boeing 747 being a 'new dimension' in flying is quite correct. It is indeed."

That is the partial analysis of Wayne W. Parrish, editor-in-chief of Aviation Daily. He previewed the 747 along with 116 newsmen in a transcontinental flight from Seattle to New York.

"The 747 looks like almost any other airplane," Mr. Parrish wrote, but "put a 727 and 707 next to it, and it shows up as a monster."

From a passenger's point of view, the floorspace of the four main cabin compartments, excluding lounge, cockpit and cargo, is about 4,000 square feet—compared to an average home of 1,500 square feet.

"One can only appraise the 747 as having enormous customer appeal," Mr. Parrish went on. "From the rear seat looking up 185 feet to the forward compartment, the interior is a sight to behold."

He described the plane's 374 seats, divided into first class and tourist. First class is, "especially astonishingly quiet and luxurious."

Regular customers will have their chance to fly the 747 when Pan Am inaugurates flights this week from Kennedy Airport in New York to London. By mid-summer the Pan Am routes will cover 27 cities worldwide.

Northrop's 747 contributions are significant: The 153-foot-long main fuselage, wing-to-body fairings, flooring and other smaller elements.



J.A. PRODUCTION LINE

Members of CONICO putting together some 225 holiday candles.

J.A. Candle Sales a Success

Members of the Ventura Division-counseled Junior Achievement Company CONICO produced and sold some 225 Christmas candles during the holiday season.

JA Advisor Chuck Taylor said the high school-age participants had little difficulty selling the white, six-inch candles door-to-door. The price was \$1.50 each. The youngsters produced the

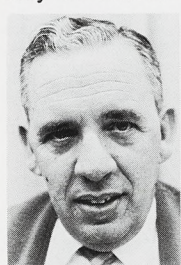
candles each Monday evening at King of Glory Lutheran Church in Newbury Park. They are now into production on desk memo pads and still a third product area is currently being researched.

This is the ninth year that Northrop employees at the Ventura Division have counseled a JA company. A record number of youngsters are taking part.

STATEWIDE DIRECTOR

School Board Work Keeps Bud Hall Busy

Recent election of Duane Hall to the statewide California School Boards Association's board of directors is the latest step in his almost eight-year history of school board service.



Mr. Hall

is busy with education when not at Northrop.

He is a charter member of the CSBA's Delegate Assembly (serving his second two-year term), immediate past president of the Ventura County School Boards Assn. (with 28 member boards), and a member for six years of the County Committee of School District Organization.

Mr. Hall's educational career began when he moved to Newbury Park in 1960. An interested attendee at Timber School District board meetings—he had two boys in school—he was appointed to fill a vacancy created by a trustee's death.

Since then he has been elected twice, been clerk of the Timber District's board of trustees and now is the five-man board's president. As a CSBA regional director he represents Ventura, Santa Barbara and San Luis Obis-

po counties at state meetings.

With Mr. Hall's shared direction the elementary school district has grown from one school with 268 pupils in 1962 to 10 schools (eight elementary and two intermediate) serving 5,240 youngsters.

Timber District has become known as an educational innovator. Its team-teaching concepts have won national interest and acclaim. "We've come a long way since 1962," Mr. Hall admits modestly.

And his interest has not

waned. He attends an average of 50 educational meetings per year and doesn't have time for many other interests. However, he just started a Teen Club for Newbury Park youngsters sponsored by the new St. Julie's Catholic Church.

How does his wife, Anne, feel about all his activities? "We've been married 25 years," Mr. Hall says, "she's very understanding."

Mr. Hall, a native of Flint, Mich., joined the Ventura Division June 11, 1963.

HUSS WINS NATIONAL TRAINEESHIP AND RECEIVES PARTIAL LEAVE FROM NORTHROP

"That Ron Huss sure does lead an easy life," chided one of his co-workers in the Ventura Division's Estimating group. "He only comes to work one day a week."

What Mr. Huss' co-workers now know is that he is on partial leave from Northrop after receiving an award from the National Institutes of Health for a traineeship in Bio-Medical Engineering at USC leading to a Ph.D. degree.

Mr. Huss received one of six awards (out of some 100 nationwide applicants) for an annual stipend of \$3,400 plus full tuition for the course.

A two-year Northrop employee, Mr. Huss has a bachelor's

degree in engineering from UCLA and two master's degrees from the same school.

ELECTRONICS GETS NEW PACT

Northrop Corporation's Electronics Division has signed an agreement with Ferranti, Ltd. of Scotland to produce the Ferranti inertial navigation and attack system for the Harrier vertical/short takeoff and landing (V/STOL) aircraft.

An initial 12 Harriers have been ordered from the United Kingdom by the United States Marine Corps. The Harrier is the first operational V/STOL fighter planned for the U.S. Marines.

Cold, Wind Fail to Halt Golf Tournaments

Undeterred by wind and cold, members of the Ventura Division Golf Club rounded out their 1969 play with tournaments at Newhall and Ojai.

Ross Ketchum won the last tournament of the year at Soule Park in Ojai as he topped Flight B with a net 59. Roy Shelley's 66.2 was second in the flight and John Wells was right behind at 66.3.

Delays for frozen greens and smudge pot smoke didn't hinder Bob Jones. His 64 won the A Flight. Second was Walt Mann with 65 and Gary Peterson was third with 69.

Other Champs

Dutch Youngers won the C Flight with a 67. Andy Tyszkiewicz had a 68.60 for second and Lou Gabriel shot 69.08 to garner third place. Eileen Munro won the Ladies Flight with a 72.

Strong Santa Ana winds sent shots flying in all directions when Ventura golfers played the windswept Valencia course in late November. And scores were correspondingly higher.

Ron Chase fired a 71 to lead all scorers in the Thanksgiving weekend tourney and win the B Flight. Second in the flight was Jim Everett, 76, and A. E. Hahn, 79, took third.

NEW CPS COURSE BEING TAUGHT

Study of secretarial accounting in the Certified Professional Secretary curriculum is now under way at Westchester High School, 7400 W. Manchester Ave., Los Angeles.

The evening course is sponsored by four chapters of the National Secretaries Association (International) which includes many Northrop secretaries. The chapters are Airborne, Los Angeles, Santa Monica and Beverly Hills.

Further information on the course, part of a review course leading to an examination toward a CPS rating, may be obtained by contacting Verlin Seaman at the Aircraft Division, ext. 2131; Mattie Lee Sherburne at the Corporate office, ext. 333; or Jaddis Martin at Ventura, ext. 553. The women are members of a sponsoring NSA chapter.

Bill Downs came in with a 73 to top the A Flight. Right behind was Lou Vinson with a 74 and then Bob Jones, 75. Hal Bixby's 79.56 edged Ed Sheridan's 80.48 in the C Flight. Bob Forbes carded 83 for third. Barb Forbes' 83 led the ladies.

The next tournament is Jan. 25 at the Elkins Ranch Golf Course in Fillmore. Club membership, open to all Ventura golfers, may be obtained by contacting area boosters.

747 Savings Top Pre-Holiday Suggestion List

Savings in the 747 program lead the list of the latest Ventura Division suggestion award winners as Operation Giant Step provided extra Christmas money for six more suggesters.

Four of the latest suggesters are involved in 747 work. Sam Trinkle, John Rowe and Joe Crudele, all of 747 Assembly, received \$47, \$33, and \$10, respectively, while Paul Friedman of 747 Trim and Drill received a \$56 award.

Chuck Courtemanche of drone electrical assembly received the biggest check for a cost-cutting idea. He took home \$81 for a test fixture improvement.

The other winner was Bill Hageman of Vendor Control. Mr. Hageman's award was \$10. All of these six, plus the many other Giant Step suggesters, were eligible for the prize drawings.

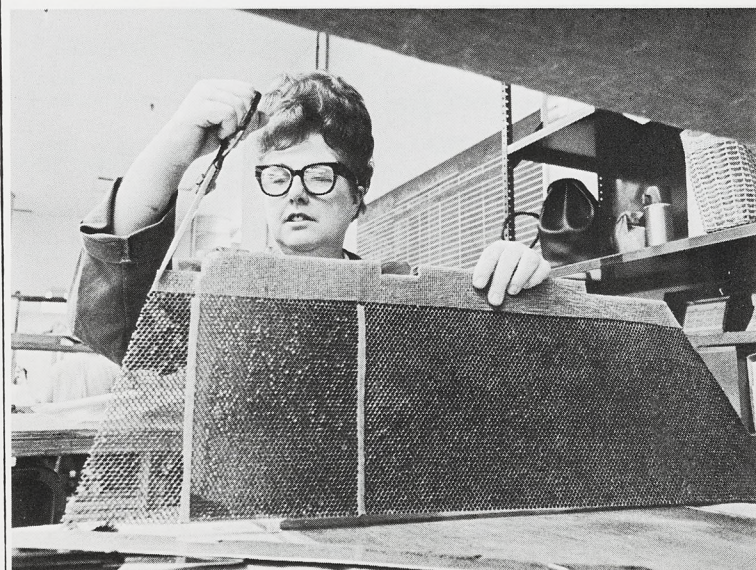
LOU GABRIEL HEADS VENTURA GOLF CLUB

L. T. (Lou) Gabriel, Jr., an industrial engineer, has been elected commissioner of the Ventura Division Golf Club. He succeeds W. K. (Bill) Quick.

Bill Downs is vice-commissioner for the golfers. Mr. Quick is treasurer. Eileen Munro has been re-elected secretary and Ron Aitken is handicap chairman.

Area boosters are Dick Donald, Engineering; Fred Longo, Administration Building; and Bob Jones, Manufacturing.

On The Job...



ROMA NUTTER prepares details and assembly for bonding of T-38 and F-5 fin tips at the Ventura Division. An assembly bonder four years, her husband, Stan, is on the Apollo Quality Control staff at Ventura.

Ventura's Future Looks Promising, Says Gasich

The Ventura Division will meet increased sales goals and boost production in the highly competitive aerospace market by remaining dynamic and diligent.

That's the message from Division General Manager Welko E. Gasich in "State of The Division" talks to management and supervision.

In spite of aerospace-defense industry budget cutbacks, the future looks bright for the Ventura Division in several of its major product lines. The market for nearly all of Ventura's products is growing.

And despite the cyclical lay-off situation inherent in the industry, "this Division has had a lot more progress than it has had problems," Mr. Gasich said.

"But," he went on, "too often we become swept up in the problems and don't give proper emphasis to our potential or successes. We become problem-oriented and not success-oriented."

Mr. Gasich admitted that it is easy to slip into this attitude. When looking at the situation in a broader perspective, though, one's outlook becomes more positive.

"Today we have better teamwork, spirit and progress at the production and management levels than at almost any time since I came to this division two and a half years ago," he said.

An evaluation of the major product lines over

the past 30 months substantiated his optimism:

AERONAUTICAL DRONES — "The then-new MQM-74 program had several problems. Production was accelerating but we were putting in 200 changes per week. Finally we stopped production and incorporated all the changes. Now we have caught up and are ahead of the Navy delivery schedule; our costs are continually coming down and we are turning out a quality product. The Navy is pleased with the bird and looks toward its expanded use."

MK-30 UNDERWATER TARGET — "This program initially had management and engineering development problems. They are now behind us. The MK-30 team has done a superlative job. Development tests at Keyport were most successful and now the MK-30's are in Hawaii for fleet evaluation. We look forward to a production order from the Navy on the Mark 30 targets."

APOLLO LANDING SYSTEM — "We performed exceptionally well on this. It was a good program, a successful one and ahead of schedule. As a matter of fact, the Division received an incentive award for excellent work."

BOEING 747 — Production of the wing fairings for the massive 747 jumbo jet "had cost and schedule problems associated with the start-up of a major pro-

gram . . . but we're on schedule now. Our cost reduction on this program has been very good but can still stand some improvement."

As for the people who build the products, Mr. Gasich said several problem areas have been ironed out.

Communications have improved, a training program for first line supervision was very rewarding, and "I am getting out of my office and meeting with the people more than ever before," he said.

Employees have a Right to be Heard

The Northrop Grievance Procedure is "a right," not just a necessary formality, he emphasized. "We must make it known that the employees have the right to file legitimate grievances. And the grievances will be given a full and proper hearing."

The net effect, he stressed, will continue to be "a better team effort between management and the employee."

Looking at the business environment for the next five years, Mr. Gasich discussed the decreasing defense budget, changing character of the work force and Divisional responsibilities to corporate growth and profit.

Commenting on specific product lines, Mr. Gasich stated the strategy for the 1969-70 fiscal year:

NORTHROP NEWS

VENTURA DIVISION

Northrop Corporation, Beverly Hills, California

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Management Club Will Hear Times-Mirror Exec

Times-Mirror Company Executive Dan Moore will be the guest speaker at the next meeting of the Ventura Division Management Club.

The meeting on Feb. 17 will take place at Los Robles Inn, Thousand Oaks. The social hour begins at 5:30 p.m. with dinner at 6:30.

Mr. Moore is manager of Corporate Educational Development for the major communications company which owns the Los Angeles Times newspaper.

He will discuss the yardsticks used in selecting men for promotion, advancement and training for higher level positions.

Reservations may be made through D. J. Manley in the Administration Building, ext. 523; Maria McFarland in the Engineering Building, ext. 1203; and Maybert Kennedy in Manufacturing, ext. 281.



VISITING AIR FORCE GENERAL James Ferguson, commander of the Air Force Systems Command, toured the Ventura Division recently with M. A. Maurer, left, the general's aide Major Glenn A. Jones, Northrop President T. V. Jones, second from right, and Division General Manager Welko E. Gasich, right.

AFTER KEYPORT SUCCESS

Mark 30 In Hawaii Tests

After successful sea trials at the Naval Torpedo Station, Keyport, Wash., the Mark 30 underwater target has been delivered

to Hawaii for operational trials.

The two Mobile Anti-Submarine Warfare Targets (MASWT) will be operated by Navy personnel based at the Pacific Missile Range Facility at Barking Sands and by Northrop technical representatives.

The U.S. Naval Ordnance Systems Command, which awarded the Ventura Division its design, development and testing contract in April of 1967, is expected to accept the Mark 30 into its inventory following successful completion of the operational runs.

The 25-foot-long Mark 30 targets will take the place of submarines in target exercises for airplanes, surface ships and submarines, according to the Navy.

The Mark 30 can be pre-programmed to maneuver at the direction, depth and speed of a normal submarine.

Thus every plane, ship, or sub which is to hunt down the underwater target drone meets each situation and condition it would face against a submarine.

(See MARK 30, page 6)

INTRODUCING SUPER SAFETY SLEUTH SAM



SUPER SAFETY SLEUTH SAM will appear in future Northrop News issues as he combats safety hazards and accidents. Created by Mac Pakula of Ventura Division Graphics, S.S.S. Sam will remind personnel of accident prevention.

Aeronautical Systems

The ever-expanding market for aerial target drones and tactical reconnaissance drones continues to increase while the over-all Department of Defense budget for acquisition declines.

The reputation of Ventura Division target drones is improving significantly in the face of intense competition, Mr. Gasich noted. The Navy is very pleased with MQM-74A performance and may utilize the drones on an expanded basis.

Where this Division's predecessor, Radioplane, once had almost 100 per cent of the target drone market, that percentage is now considerably less due to intense competition. But marked increases should soon be apparent if quality and performance continue to improve.

Modified versions of the drones are also being explored and foreign drone sales continue to be strong.

Aerospace Landing Systems

This is one market area where activity is falling off considerably. NASA's budget has gone from \$5.8 billion in 1966 to \$3.7 billion for this fiscal year.

The Ventura Division has provided NASA with Earth Landing Systems for all of America's manned space flights, beginning with the Mercury series. Nine Apollo systems have been delivered to the prime contractor, North American Rockwell, and another nine remain to be dispatched.

In view of the decreasing market for Earth Landing Systems, we are studying application of our paradynamic technology to other product areas. The possibilities look promising but are of a long range nature.

Marine Systems

"There are significant growth capabilities in the Anti-Submarine Warfare (ASW) field," Mr. Gasich said. "And we have a real foot in the door."

Two MK-30 unmanned underwater target systems are now being readied for operational testing in Hawaii after successful development tests at Keyport, Wash. "The Navy is very pleased with this vehicle," Mr. Gasich said.

The Mark 30 target fills a low cost need in anti-submarine warfare training for ASW airplanes, surface ships and other submarines.

Market potential in this field is very great and a production contract is a distinct possibility.

We are also exploring other low cost solutions to the Navy's ASW problem. A Ventura-conceived torpedo modification program has been received with enthusiasm in some parts of the Navy.

Aircraft Subassembly

Use of plastics (and soon sophisticated composite materials) in commercial aircraft subassemblies has also enhanced the Ventura Division's professional reputation.

Work on the wing-to-body fairings for the Boeing 747 jumbo jet is progressing very well, Mr. Gasich explained. Continued 747 work is expected if our costs can remain competitive.

"It is definitely Ventura's responsibility here to help contribute to those methods which improve or maintain quality while cutting costs," Mr. Gasich said.

There are also strong possibilities for work on other commercial aircraft programs.

Equally significant is the joint Engineering/Manufacturing research program on advanced composite materials. It is very likely that Ventura will soon receive funding from the military for the engineering design of an aircraft subassembly of advanced composite materials. This should lead to new types of products five years hence.

Moonwalker Sees M2-F3



ASTRONAUT Neil A. Armstrong, right, America's first moonwalker, views the prototype of a possible space vehicle of the future, the Northrop-built M-2 lifting body, with NASA Test Pilot William H. Dana. The Apollo program astronaut returned to NASA's Flight Research Center where he once served as a test pilot. The M-2 and the Northrop-built HL-10 lifting bodies are being flight tested to develop technology necessary for building space shuttle craft capable of supplying men and materials to orbiting space stations and then maneuvering to ground landings. The HL-10 has successfully completed more than 30 flight tests, some at supersonic speeds, following air drop from a mother ship flying at altitude. (NASA Photo)

WINCON 1970 Featuring 'Electronics Strides' Report

"Electronics Strides into the Seventies" is the keynote theme of the 1970 Winter Convention on Aerospace and Electronic Systems (WINCON), which will be held Feb. 10-12, at the Biltmore Hotel.

"Navigation in the '70s," one of the major topics to be discussed in a session headed by Administrator John H. Shaffer of the Federal Aviation Administration, includes a discussion by Dr. David E. Wallis, Jr., of Northrop Electronics Division of the Omega navigation system.

Other sessions, keyed to topics of major interest to engineers and scientists today, include:

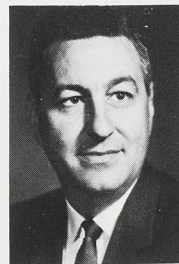
"Long Life Reliability" which will stress as the major theme the need for high reliability equipment for long-term space use.

"Systems for the Cities" will discuss approaches and opportunities to attack the problems of the cities, including crime, environment control, housing and social interaction.

"Computers — The Essential Tool for Managing Our Future" will explore such topics as managing our ecology, economy, transportation and urban environment with emphasis on the expanded use of computers.

HALLICRAFTERS NAMES EXECUTIVE

Walter E. Sutter has been appointed vice president and general manager of the newly formed Communications Equipment Division of The Hallcrafters Co., a Northrop subsidiary.



Mr. Sutter
Northrop PAGE Communications Engineers.

Mr. Sutter is a veteran of 23 years in the communications field and previously held key management posts with General Electric.

Improvements In Two Benefits Now Effective

Two improvements in the Northrop benefits program announced earlier become effective this week for Northrop employees serving in California operations.

The Savings Plan has been amended so that hourly employees who have been continuous participants since the inception of the Hourly Plan (Feb. 6, 1966) may increase their weekly contributions to \$8. The company matches this with a \$4 contribution. Prior to Feb. 1 the maximum contribution for hourly employees was \$6.

Amendment of the Retirement Plan provides that all employees acquire a vested interest in the plan upon completion of 10 years of continuous service, providing they are full-time employees who were under the age of 60 years at the time of hire. Prior to the amendment, vesting was acquired upon completion of 15 years of service or 10 years of service if the individual was 45 years of age or older.

Fleet Discount Plan Offers Auto Savings

Northrop employees who have taken a fancy to 1970 automobiles or recreational vehicles may find it advantageous to check Northrop Personnel Activities outlets for information on the Fleet Discount Plan.

This plan, offered through participating dealers, features vehicles at fleet discount prices with optional equipment available at dealer costs.

Personnel Activities offices have complete volumes of information, giving exact prices. Introductory cards will be provided for dealers. Used vehicles are also available through the plan.

And those interested in further savings may wish to check the Northrop Credit Union for low-cost loans.

**IS IT NEWS?
CALL EXT. 4273
HAWTHORNE**

Evening With The Governor



DURING A STOPOVER in Guam, Arlie J. Blood, manager, Current Aircraft Systems, Aircraft Division, second from left, and Bob Elder, center, special assistant to the president of Northrop, were invited to attend a social function at the governor's mansion. Governor Camacho is third from right. At left is Rear Admiral Paul Pugh, commander, Naval Forces, Marianas, at right is Lt. Gen. A. C. Gillem II, USAF.

Iran Picks Northrop To Lead Consortium Installing New System

The Iranian government has awarded a \$175 million contract to a multi-nation consortium led by Northrop Corporation to provide Iran with one of the most modern communications systems in the world.

The consortium will install for the Iranian Ministry of Post, Telephone and Telegraph a nationwide telephone, telegraph, television and wideband data telecommunication network. It is believed to be the largest national telecommunications system ever implemented under a single contractual obligation.

Taking Part

Northrop will carry out its role in the consortium through its wholly-owned subsidiary, PAGE Communications Engineers. Other members of the consortium are General Telephone and Electronics International, Nippon Electric Company of Japan and Siemens Aktiengesellschaft of Germany.

The integrated national telecommunications system involves the construction of over 500 telecommunications stations to interconnect 60 of the major urban centers, hundreds of widely-dispersed state and private industrial installations, along with hundreds of towns, villages and hamlets. The network will extend over a 8,700 mile (14,000-kilometer) route.

In order to accomplish this major task by the autumn of 1972, considered a record time for systems of less complexity and size, the four participating companies have pooled their tech-

nical, production, financial and personnel resources for the project.

Each of the participating companies has had extensive experience in Iran.

Northrop initiated the multinational consortium approach for the large scale project and through PAGE will manage the in-country implementation of the project. PAGE Communications Engineers is an internationally known designer and constructor of major telecommunications systems. The firm recently completed the Iranian earth station for satellite communications with its microwave link to Tehran, providing Iran with worldwide telecommunications capability.

General Telephone and Electronics International will supply the high density, medium density and low density microwave systems for the networks in the southern part of the country. It will also design and supply a complex computer control center at Tehran which will supervise and report operational status of all the stations in the network.

More Tasks

Nippon Electric Company will supply and install the high, medium and low density microwave ultra-high frequency and very high frequency networks in the northern part of the country, and further implement the troposcatter microwave link and other communications links in the southern part of the country.

Siemens will supply multiplex equipment for telephone, telegraph and radio program equipment as well as the power supply plants.

TRAVEL CLUB SETS SUMMER TOURS

Northrop Travel Club has announced two additional summer group tours and set organizational meetings for each.

Forty-two reservations for air travel only, Los Angeles to London, have been obtained. They depart May 31 and return June 29. The cost is \$285 roundtrip. At 7:30 p.m. Feb. 20 those interested will gather at NRC Clubhouse, Hawthorne.

A second tour covering travel and housing to Spain, Portugal and North Africa departs Aug. 22 and returns Sept. 13. The cost is \$695 plus \$49 in tax and service charges. Two meetings, Feb. 13 and April 10, both at 7:30 p.m., have been set for NRC Clubhouse, Hawthorne.

Brochures covering the trips are available through Personnel Activities outlets.

PAGE GETS PACT

Northrop PAGE Communications Engineers will design, engineer, construct and install a troposcatter communications system for the Canadian National Telecommunications (CNT).

Under the contract, valued at \$385,000, PAGE will furnish and install the radio equipment and provide support services such as site location verification and testing of completed system. The system will link Galena, Yukon Territory, with the Arctic Red River, Northwest Territory.

Apodaca Family Receives Medals Won by Soldier

Six medals for military valor were awarded posthumously to Sgt. Jack M. Apodaca, former Aircraft Division employee, at an award ceremony held recently at Ft. MacArthur, San Pedro.

The awards, which included the Distinguished Flying Cross, the Bronze Star with one oak leaf cluster, Air Medal with five oak leaf clusters, Purple Heart, Vietnam Service Medal, National Defense Service Medal, and Good Conduct Medal, were received by the young man's father, Jack J. Apodaca, Aircraft Division Quality Control.

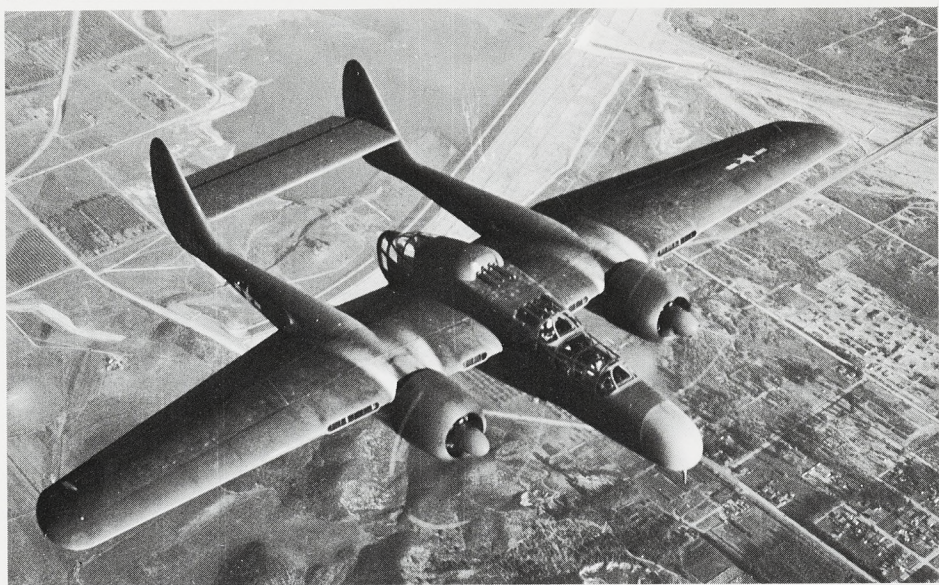
Former Employee

Mr. Apodaca said his son worked in the Standards and Calibration Laboratory before leaving for the U.S. Army.

"Jack spent 10 months in Vietnam," his father said. "His first five months were on ground duty. He then volunteered for duty as a door gunner on a helicopter because he wanted to do more. He was killed when the helicopter was shot down near Saigon on Aug. 14, 1969."



Jack M. Apodaca



THE BLACK WIDOW IN TEST FLIGHT OVER SOUTHERN CALIFORNIA



CREW CHIEF SIGNALS ALL-OKAY FOR BLACK WIDOW TAKEOFF

P-61 Black Widow Was First Night Fighter

A loud roar in the sky above the Los Angeles Coliseum on the night of January 8, 1944, startled the 100,000 spectators at the Army-Navy Show for war workers.

They looked up and caught a glimpse of something fast and dark flashing through the stabbing searchlights in the sky. Seconds later an announcer told them what it was:

"What you saw—if you looked fast enough—was America's newest fighting plane, the Northrop P-61 Black Widow."

This was the first public exhibition of the largest and most powerful pursuit plane built to that time. At first all details were highly classified, but gradually information became available. It was revealed that the Black Widow was the first fighting plane designed specifically for night fighting. Air Force tacticians, studying the results of the Battle for Britain, decided that a true night fighter was essential.

As a result of this study, a circular proposal request brought in designs from American industry. Most of them only adapted existing day fighters. The Northrop proposal was completely original. The design called for an all-metal, twin engine, mid-wing monoplane with twin tail booms. The three-man crew compartment would be fully enclosed and located between the two engine nacelles.

The fuselage design was built around a special radar set car-

ried in the forward tip of the crew nacelle.

There was also a small radar set in the tail, but this was for protection only, warning the pilot if unfriendly aircraft approached. The armament consisted of four forward shooting 20mm cannon located below the crew nacelle and four .50 caliber machine guns in a top turret. The turret could be remotely controlled by gunner, pilot or observer.

Northrop received final design approval in 1941. Pushed by worsening conditions in Europe and the Pearl Harbor attack on December 7, 1941, the XP-61 prototype was test flown from Northrop Field (now Hawthorne Municipal Airport), on May 26, 1942. The first production model came off the assembly line on October 31, 1943.

Recalls Flights

Max Stanley, who is manager of Flight Support Operations in the Aircraft Division, was one of the pilots who flew the original Black Widow. As he recalls it: "Vance Breese made the first flight and then he was succeeded by John Myers. I took over on the sixth flight."

Mr. Stanley went on to do a substantial amount of the development flying in the Black Widow for the remainder of the program. He flew all models from the A through the E. The latter was a reconnaissance version designated the F-15. "F" at that time meant photo instead of the present fighter.

(Editor's Note: This is the second in a series of articles presenting historic Northrop products. Northrop News Staffer Ivy Edmonds researched and wrote this feature.)

Tom Quayle, retired manager of the Electro-Mechanical Division's Anaheim department, is another who recalls the first production model.

"I remember my first ride in the Black Widow," Mr. Quayle recalled. "The pilot warned me that it had a powerful takeoff."

"When he turned on full power, I was slammed all the way back against the bulkhead. When I picked myself up I was ready to admit that it was the most powerful pursuit plane made."

The first Black Widows went into combat with the 9th Air Force in England on July 3, 1944. Their 376 mph speed, superior maneuverability and accurate radar quickly drove German night bombers from the air. The Luftwaffe then switched to a new tactic — twilight attacks when returning U. S. day fighters were hampered by nearly empty gas tanks and poor visibility. A shift in P-61 operations plugged that gap.

The P-61 crews apparently were not afraid to attack anything. Columnist Hal Boyle told

of a crew scoring a direct hit on a German buzz bomb with a 20mm cannon. It exploded "like a gasoline storage dump." Unable to swerve, the P-61 plunged through the explosion. It returned to base covered with soot and with the left rudder burned off. Quick repairs had it back in the air without missing a sortie.

Another Northrop man who remembers the Black Widow in combat is Martin A. Severson, assistant to the general manager, Electro - Mechanical Division, who was a Marine Corps colonel when he flew 25 missions in the European Theater. In 1944 he went to England with a small group of Marines on an assignment to develop a night fighting capability for the Corps. To get practical experience he flew 25 missions in six weeks with the Air Corps 422nd Night Fighter Squadron.

"In spite of being so heavily armed and as large as a medium bomber, the Widow was extremely fast for its day and as maneuverable as a lighter fighter," Mr. Severson recalled. "It was operable on a short field—in the air in a thousand feet—and could slow to 70 mph for a landing."

Four months after their introduction in Europe, the Black Widows had so effectively reduced German night fighting that they were given a new job—night intrusion. In their first five months of striking behind enemy lines, the Air Corps credited them with destroying 40 locomotives,

109 motor transports, 271 rail cars, four major warehouses and five marshalling yards.

In the Pacific, newly introduced Black Widows struck equally hard. Letters received at Northrop reflected the pilots' pride in the new plane.

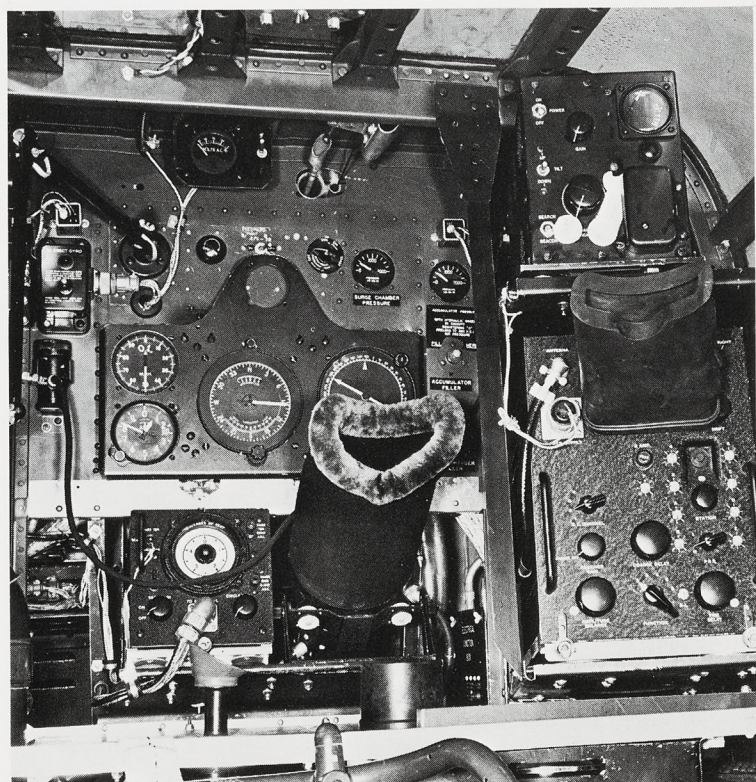
"She takes you out, knocks them down and brings you home," one wrote from New Guinea. Another said, "I think Northrop has the best damned plane in the Pacific. Tell Northrop employees we thank them a lot."

Going All Out

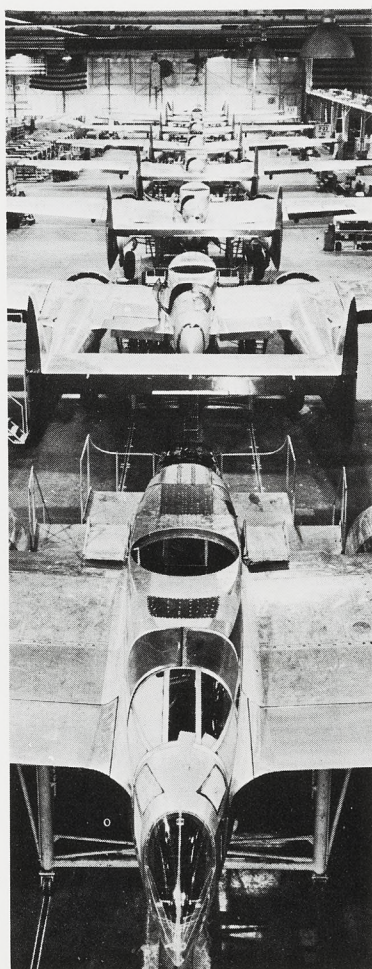
Meanwhile back at Northrop, where a bustling production line was turning out the planes, a call was received from the Air Force to up production 30 per cent. A new phrase was coined: "Combat Urgency!" and it helped spur production.

Constant improvements took the Black Widow through successive models until production was closed out when the war ended. Final production figures were close to 700.

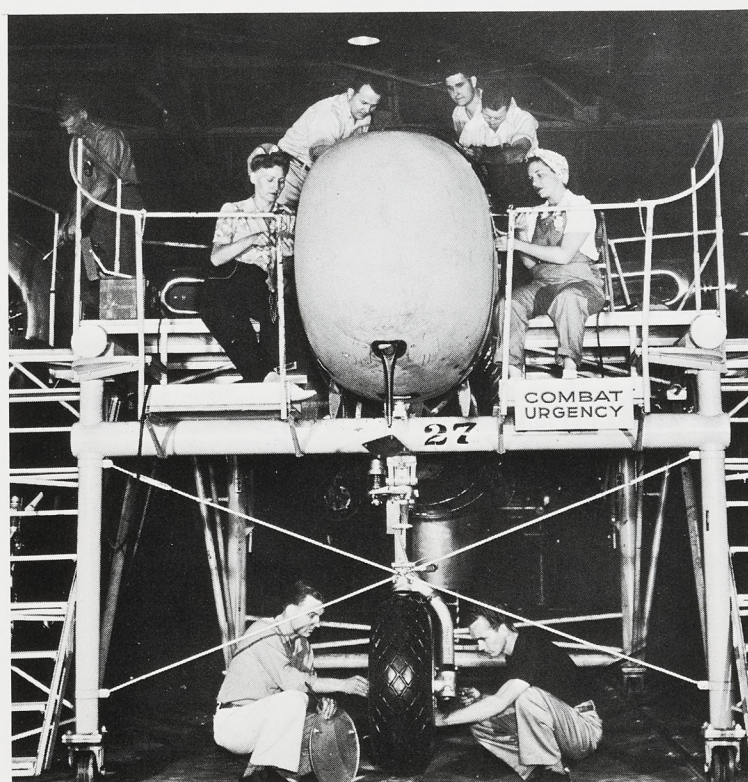
Although no longer in the active Air Force inventory, the Black Widow remains a plane Northrop employees can look back on with pride. The spirit of cooperation, advanced design and superior workmanship that made the Black Widow one of the most famous of World War II aircraft has carried on, making possible the T-38 and F-5 as well as Northrop's contributions to the Boeing 747.



GUNNER STATION of the P-61 shows the then sophisticated instruments in use during World War II. The Black Widow was first publicly shown in January 1944.



ASSEMBLY LINE—1944



COMBAT URGENCY tags reminded Black Widow assemblers that their plane was badly needed in the war zone. Combat Urgency drive increased production 30 per cent.

FOR 45 YEARS

Classic Automobiles Are His Hobby

Remember the Lafayette, the Richelieu, the Pierce Arrow, the Locomobile and the Reo Flying Cloud? The Electro-Mechanical Division's Robert M. Bartlett does. They are all included in his vast collection of material on classic automobiles.

Bob's interest in old cars began in 1923 when he saw a magazine ad for a white Rolls Royce. He was waiting in a doctor's office in Boulder, Colo.

"I thought I had never seen anything so beautiful in my life," he said. "I bought a copy of the magazine and still have the clipping somewhere in my collection."

The next addition was a 1923 Motor Magazine annual. From that point on he has added material, clippings, pictures and books until they fill an entire filing cabinet in his garage. He estimates that they number more than 4,000 items.

His interest is not in old cars as such, but in classic cars. These were particularly outstanding models or modifications. Not every car becomes a classic.

While most of the material he has is about older cars, he adds modern cars when they fit into the classic role. One he includes is the first Mustang. The original T-Bird is another. Many are of makes no longer being manufactured. These include the Daniels, Dorris, Brewster, Cunningham, and his favorite of all cars, the 1927-1933 Pierce Arrow. He picked the Pierce Arrow for its craftsmanship, style and quality.

In assembling his extensive collection he has passed by style gimmicks and confined himself strictly to classics — cars that will be remembered.



HE REMEMBERS THE OLD ONES
Robert M. Bartlett with 1922 Essex in background.

Mr. Bartlett is a buyer in Technical Procurement at Anaheim, and has been with Northrop since 1950.

Young Boys, 13, Show Aptitude For Programming

Computer programming is strictly for the boys, Herb Turner, manager, Business Systems Development Course, learned.

The Business Systems group prepares computer programs to handle the needs of the Electro-Mechanical Division. Recently Mr. Turner happened to meet Bill Johnston, supervisor of the Division's Inventory Control, in a supermarket parking lot. Mr. Johnston mentioned in passing that he needed a computer program to check a 20,000 card deck used in a perpetual inventory of high value items.

Scott Johnston, Bill's 13-year-old son was listening. Scott is an eighth grade student in computer math at Ladera Vista Junior High School, Fullerton. Scott presented the problem to a classmate, Matt Crawford, also 13. By afternoon the two boys presented Scott's surprised father with a complete program for instructing an IBM 360 how to search for lost inventory items.

The boys' work was checked by the Business Systems group and was found to be a completely workable solution. However, they lacked familiarity with the Northrop programming policies and used the wrong computer language, using FORTRAN instead of the COBAL language used by Northrop's Business Systems.



NORTHROP GIRL IN TV SPECIAL
Linda Hennrick, second from left, second row, with members of the Young Americans.

Linda Hennrick Appearing With Young Singing Group

The "Young Americans" singing and dancing group will make their first visit to Southern California Feb. 11, in the Dorothy Chandler Pavilion of the Los Angeles Music Center.

One of the group's members is Linda Hennrick, daughter of Eileen Hennrick, secretary to Jim Lynch, director of Engineering for JIFDATS, Electronics.

Linda, 18, has performed with the Young Americans for two years. She has accompanied them on singing tours to Australia, Taiwan, Japan, Thailand, Hong Kong, Okinawa and Canada to help improve the image of American teenagers in foreign countries.

The group was formed in 1962 by Los Angeles teacher Milt Anderson for the purpose of making goodwill trips overseas. The Young Americans pay their own way by making professional appearances in the United States.

Linda has appeared with the group on such national network television shows as the Perry Como Special, Junior Miss America Pageant and the Ed Sullivan, Red Skelton and Andy Williams Shows.

The Young Americans will host their first television special at 9 p.m., March 12, with guest stars Tiny Tim and Lorne Greene. The show will be broadcast over Channel 7.

Russell Ramsey Earns Scouts' Highest Honor

Russell Ramsey, son of James Ramsey, 747 Engineering, Aircraft Division, received the Boy Scout Eagle Award at a recent Court of Honor.

The Eagle Award is scouting's highest honor. Only two per cent of Boy Scouts reach this rank.

Russell, a 15-year-old sophomore at Rolling Hills High School, is a member of Troop 962 and is the troop's first member to progress from Tenderfoot to Eagle since the troop was formed four years ago.

He has served the troop as scribe, chaplain, assistant patrol leader, patrol leader, instructor and junior assistant scoutmaster.

Among his scouting awards are a medal in the troop Decathlon of Scouting Skills, Grand Canyon Trail Hike award and awards in inter-troop swimming competitions. He also has received the God and Country Award and is a member of the Order of the Arrow.

Russell's father has been a Northrop employee for 28 years.

'HELLO DOLLY'

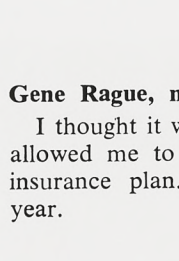
Northrop Personnel Activities ticket outlets are now offering discount tickets for the March 7 5 p.m. showing of the motion picture classic "Hello, Dolly" at Grauman's Chinese Theatre, Hollywood.

OPINIONS, PLEASE — What Did You Think of The Northrop Benefacts Report?



Pat Kimsey, target drone assembler, Ventura:

I liked it very much. I liked the way the insurance benefits were explained. It was easy to understand without going into all the usual fine print.



Gene Rague, master scheduler, Electronics:

I thought it was an excellent summary which allowed me to evaluate my total savings and insurance plan. I hope I receive one every year.



Haldis Boyd, secretary, Electro-Mechanical:

I really liked the Benefacts folder. Not only does it give me some figures so that I can plan ahead, but it also showed that we're keeping up with other companies. In addition, it makes up a comprehensive check list for any survivor showing what benefits have been accrued.

Helen Smith, engineering assistant, Aircraft:

Wonderful. It is something we have long needed. To me it represents a lot of facts in one place and a boon to planning ahead to retirement. I think it was nice of Northrop to provide this service.



Kirk Hunt, environmental engineer, Electronics:

I thought it was tremendous. It summarized all of my benefits on one piece of paper and serves as an easy reference for planning my estate.



Lynn Cooper, Property Control, Electro-Mechanical:

I really liked the Benefacts folder. It let me know a lot I didn't know about the benefits of working for Northrop. Also, it will save me a lot of time in the future. I won't have to waste time making phone calls to get the answers.

L. F. (Red) Oates, first cook, Aircraft:

Very informative. It's interesting to use this to think ahead. And it shows a good deal about what I am worth, or will be at retirement. More of this type service would be helpful. It sure shows the company has an interest in you and your future.



Generous Ventura Dollar Donors Contributed \$26,931 During 1969

Ventura Division employees in 1969 contributed \$26,931.28 to charitable institutions and fellow employees in need.

Distribution of funds was handled by a volunteer board of directors of the Employee Dollar Donors club.

Among the 35 Los Angeles and Ventura county groups receiving financial support were several hospitals, institutions and

groups active in youth work. They shared \$12,050.

In-plant aid to employees in serious financial trouble totaled \$14,881.28. "This money aids families who are in serious trouble due to circumstances beyond their control," according to President Johnnie Via.

Division employees donate a specified amount of money each week to the Dollar Donors

through payroll deduction. The donations are tax-deductible.

This year's contributions bring the 15-year total to nearly \$400,000.

Flo Green Ends 18 'Happy' Years With Northrop

Flo Green took fond memories of Northrop with her when she retired Feb. 1.

The company not only provided what she described as "a good life and a very happy feeling" but it also gave her a husband.



Mrs. Green

Working alongside her was Paul Green. So 15 years ago they were married. And both kept right on working. When the company moved to Newbury Park and became Northrop's Ventura Division the Greens moved to Thousand Oaks.

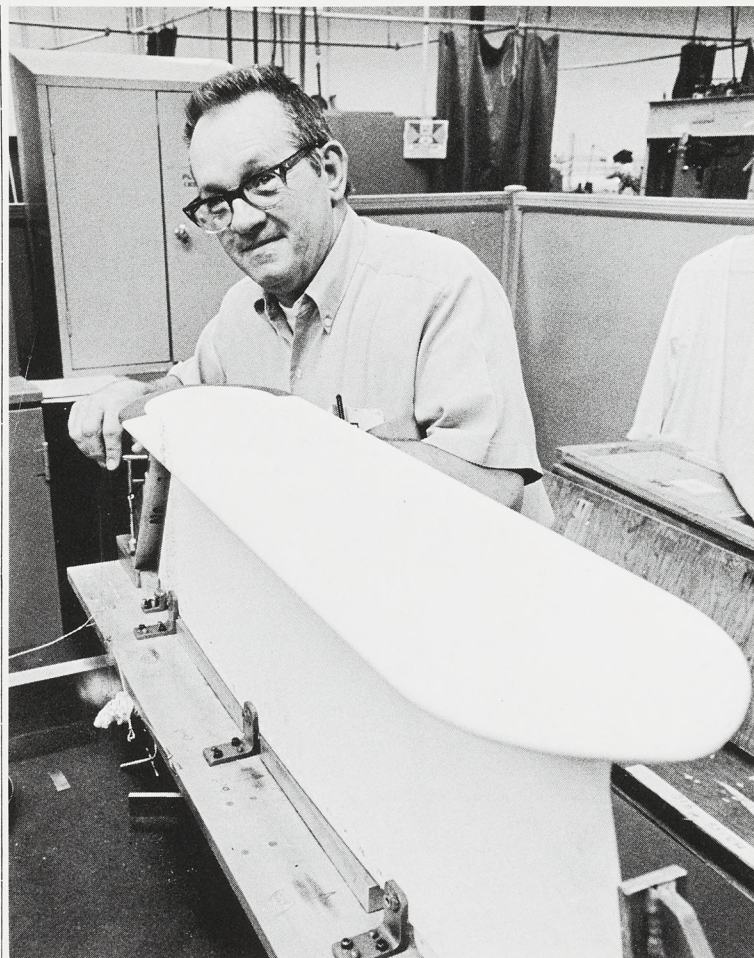
Together

"We felt the company was our home. Where it went we went," Mrs. Green explained.

The Greens were active bowlers in Northrop-sponsored leagues for many years and speak very highly of their Northrop experiences. "It's a wonderful place to work," she said.

With her husband, who ended a 16-year Northrop career with retirement a year ago, Mrs. Green plans a tour of the United States in a camper-truck.

She'll also have more time to visit her grandchildren—all seven of them.



A COST-CONSCIOUS INSPECTOR
Roy Fox won \$270 for a money-saving suggestion.

Roy Fox, Always Thinking, Gets \$270 For Economy Idea

Roy Fox is always thinking.

Three years ago the Ventura Division assembly inspector won a major suggestion award. Last week he did it again; this time for \$270.

"Rather than lining up the MQM-74 vertical stabilizer by sight, I suggested that a fixture be built which could mechanically align the part," he explained.

Cost savings in time through avoidance of rework won Mr. Fox the money. He also picked up another check for \$10 on another inspection-related suggestion.

T. L. Cotton came up with a timesaver in shop pit pumping and was awarded \$45. J. L.

Moore and D. R. Sperry received \$30 apiece for a joint suggestion to reduce MQM-74 fuel consumption.

Still another Ventura suggester to receive a good-sized award was Frank Balaszi. He received \$40 for his idea.

More Winners

E. L. Snook was awarded \$27 for a cost-cutter, J. L. Moore won \$20 for another idea, and J. J. Lawrence thought the pencils in general plant use were too expensive. The suggestion committee agreed and gave him \$19.

Four others received \$10 awards. They were Jack L. Landis, A. M. Arroyo, Bert Molina and D. R. Woolard.

Educational Opportunities High With New Semester

February brings a new semester to the many Ventura Division personnel active in both in-and-out-of-plant educational programs.

Classes are held in the Ventura Division cafeteria or administrative conference rooms, at Moorpark College, San Fernando Valley State College and extension courses are offered at Thousand Oaks High School during evening hours.

The University of California at Santa Barbara, for example, is conducting certification courses in Manufacturing and Purchasing at Thousand Oaks High and Industrial Relations at Camarillo High School.

Moorpark College's curricula has much to offer Ventura personnel, according to Al Robinson

of the Ventura Training office.

Five classes cover supervision, six are available in Data Processing, secretaries can take five courses to improve their skills and there are five classes in a program for electronic technician training.

Moorpark College, located 15 minutes away from Thousand Oaks by car, requires very nominal fees.

Valley State College, UCLA, USC and other four-year institutions also offer many evening courses. A three-unit course in statistical methods will be offered on a Valley State extension program at Thousand Oaks High.

Most classes qualify for the Northrop Educational Refund plan. Mr. Robinson's office, ext. 1180, can provide information.

TO EVALUATE INVENTIONS

Patent Committee Named

Dillon R. Cox has been chosen to head a new six-man Invention Evaluation Committee which will evaluate and process inventions created by Ventura Division employees.

Welko E. Gasich, Division general manager, appointed the committee.

Working with Mr. Cox will be Robert Bowditch, Enos Jeffs, Hal

Ort, Lauren Persons and Frank Tipton.

Personnel who feel they may have invented an item which should be patented are urged to contact Mr. Cox at ext. 1457.

So-called patent committees are active in all Northrop Divisions, Mr. Cox said, as a service to the employee as well as the company.



HONORED GOLFERS

Eileen Munro and Ross Ketchum. (Earl Muehlenbach Photo)

ROSS KETCHUM, EILEEN MUNRO WIN 'GOLFER OF THE YEAR' DISTINCTIONS

Ross Ketchum and Eileen Munro are the Ventura Division Golf Club's top golfers of the year.

Mr. Ketchum, a 19-handicapper, went into the final tournament of 1969 in a scoring tie with Dick Kipp and Lou Vinson. He broke the tie by winning one of the three flights.

The Golfer of the Year finished with 430 points—awarded on the

basis of participation, score and administrative service to the 200-member club.

Right behind were Mr. Kipp and Mr. Vinson with 380 each. In fourth was Ron Aitken with 370. Behind him was last year's winner, Bill Quick, Jr., with 340.

Miss Munro easily topped the dozen female competitors to be the first recipient of the Ladies Golfer of the Year award.

MARK 30—Development Team Earns Steyer's Praise

(Continued from page 1)

"The Mark 30 task force has performed an outstanding job in recent months," said Program Manager W. A. (Wes) Steyer. "This is a completely new field, and we have delivered on schedule and within our budget."

Heading the 14-man Mark 30 Engineering group is H. A. (Hap) Hazzard, chief project engineer. Ben Beirne and Les Cole were responsible for guidance and control; Orville Kyler was project engineer for all electrical components and systems integration.

Lou Florence supervised Logistics, Parts and Configuration; Joe Palys handled test equipment which includes Ventura Division-built special support equipment.

Lee Johnson was responsible engineer for instrumentation; battery and casualty system was installed under the direction of Gene Koehler; Dick Hobeck and Reese Briggs were lead designers.

Bill Bridwell was project engineer for test and checkout. Jim Rummel supervised the target payload-acoustics subsystem, assisted by Rodger Sorenson during the in-plant and field test activities.

Construction of the two vehicles was completed by the Experimental Fabrication group under the direction of Ralph Friesen with Earl Clark supervising the Mark 30 work.

Joe Parks of Quality Assurance, Keith Campbell of Contract Management and Bob Pepper of Procurement rounded out the MASWT task force.

A 10-man Ventura Division team headed by Charles E. (Ed) Martin will operate and maintain the Mark 30 targets during trials at the Navy's Underwater Range.

Others in Hawaii are Mr. Kyler, Mr. Palys, Larry Kirsch, Lloyd Simpson, Joe Owens, Mr. Rummel, John Haberek, T. C. Simonson and J. C. Williams.

The Ventura Division's entry into the underwater target field

is an extension of its pioneering work in the development and production of remotely-controlled aerial targets for surface-to-air and air-to-air weapons training.

NEW OFFICERS

Wade Tilley has been elected president of the Ventura Division's Rifle and Pistol Club. Harry Caseldine is the vice president.

Sharing treasurer's responsibilities with Mr. Tilley is Dave Coe. Mr. Coe doubles as club secretary. Joe Letteriello is the at-large member of the executive board.

The Rifle and Pistol Club is registered with the National Rifle Assn. and participates in many sanctioned marksmanship events during the year.

Rod & Gun Club To Install

The new board of directors of the Ventura Division's Rod and Gun Club will be installed at a special dinner meeting Feb. 24 at the Chatsworth Women's Club.

Taking the reins from outgoing commissioner, Dick Shewmaker will be Don Kohn. The vice-commissioner will be Harry Caseldine.

Walt Packert is the new treasurer and Marian Robinson is secretary. Dick Small will head Rod activities with Hal Hunsberger in charge of the Gun division.

Members at-large on the board of the directors of the 104-member group are Larry Parson, Earl Muehlenbach and Mr. Shewmaker.

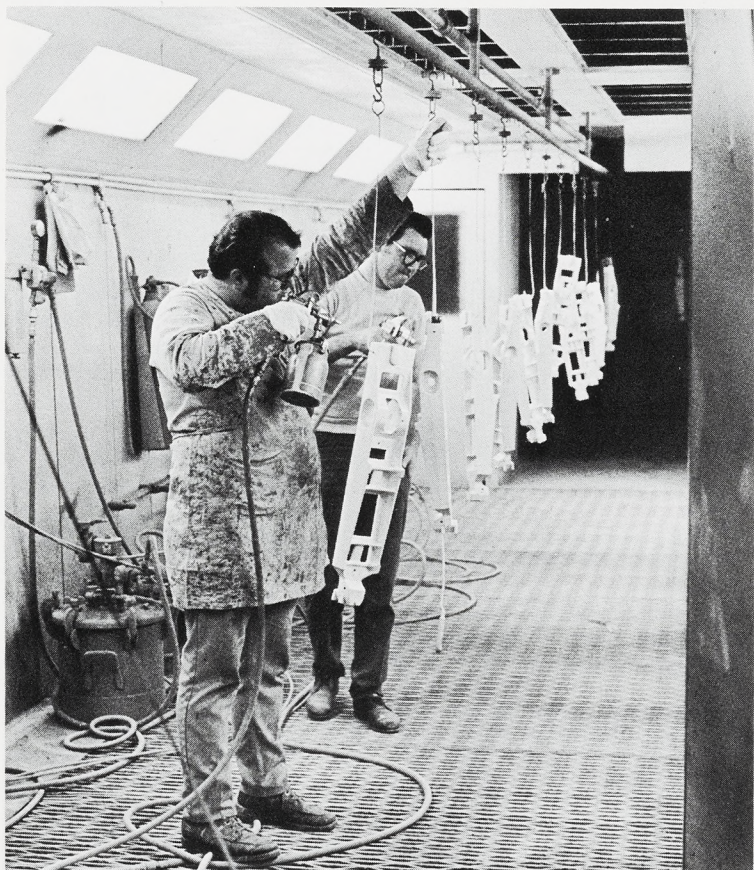
NORTHROP NEWS

VENTURA DIVISION EDITION

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Vol. 28, No. 3

February 18, 1970



PAINT SHOP TECHNIQUE

Fans above Bob Sperry and Jim Bamberg send residue through floor grate.

Stanford Professor Gives Assistance on Marketing

Contributing new ideas in the latest marketing techniques and contract acquisition procedures to Ventura Division Marketing department recently was Professor

Robert Davis of the Graduate School of Business, Stanford University.

Prof. Davis was invited to meet with key Ventura Marketing personnel by Welko E. Gasich, Division general manager, and Tom Flannigan, vice president, Marketing.

The two-day visit included meetings with George Grogan, vice president, Product Development; Paul Culver, chief, Market Forecast group; Stiles Burke, director, International Marketing; Robert Bowditch, director, Advanced Program, as well as Mr. Gasich and Mr. Flannigan.

Prof. Davis has a wide variety of clientele and a broad background in the defense business. He is highly respected in his field, according to Mr. Flannigan, and was able to offer valuable assistance to the Division's Marketing program.

He also addressed a Management Development seminar at DuPar's during the evening.



DESCRIBING NEW APPROACHES

Prof. Robert Davis discussing Marketing at seminar.

Stringent Methods Guard Against The Possibility of Air Pollution

Although the finger of blame for much of the country's air pollution is always being pointed at "industry," in general, the Ventura Division is well above any such charges.

How much do Ventura Division operations contribute to dirty air? None. Ventura sends virtually no pollutants into the Conejo Valley sky.

That's the report from Clyde Corder, chief, Plant Engineering and Maintenance group. "Ever since this plant opened its doors six years ago we have practiced the most stringent anti-pollution measures," explains Mr. Corder.

"The functions of this plant do not include burning or noxious chemical activity which would pollute the air," Mr. Corder went on.

"The only activity we have which could conceivably contribute to pollution would be in the paint and metal spray areas.

"But we control those vapors and tiny particles the same way we did when we first came here from Van Nuys — using water in special closed system spray booths," he said.

Painting aerial target drone parts takes place in a special compartment. Overhead fans create a downdraft through a grill and all of the particles and vapors are absorbed by recirculating water.

This water is then treated and hauled away for proper disposal

by chemical experts.

The chemical nature of the aluminum (metal) spray operation in the 747 program is different. But a similar action occurs.

Water in the 747 spray area flows down a banked curtain in the spray booth. The recirculating water collects the tiny metallic particles. As the water recirculates, the metal drops to the bottom of the trough because of its weight.

"Sort of like a miner who pans for gold," Mr. Corder said. "Except, when we clean out the trough, the dust isn't gold but aluminum."

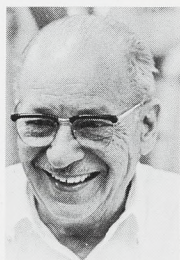
Vapors also are chemically trapped in the water and not dispersed into the air, assuring chemical cleanliness and prevention of pollution.



Mr. Corder

Swede Sandell Leads List for Service Awards

Harold (Swede) Sandell tops the February list of Ventura Division personnel qualifying for service pins. Mr. Sandell, a technician in the Environmental Test Laboratory, is a 20-year man.



Mr. Sandell

He marked 20 years of continuous service Feb. 6. But he also has another five years with the company — from 1942 to 1947.

Originally hired at the Aircraft Division, Mr. Sandell transferred to the Ventura Division in 1955.

Qualifying for 15-year pins this month are Charles Pumfrey, Field Engineering and Test; Max Thieme, Master Scheduling; and Robert Rowlett, Recovery Systems Project office.

Five-year pin recipients are Bruce Haskell, Lowell Lyle, Bill Casey and Gary Watts.

ELECTED

New president of the Ventura Division's Camera Club is Earl Muehlenbach. He succeeds Eileen Munro who steps down to become secretary-treasurer.

Vice-president of the shutterbugs is Bill Umbenhauer.



WATERFALL CATCHES PARTICLES

Tiny particles from Phil Miller's metal spray gun are trapped by water.

SUGGESTIONS

Women Moving Ahead

Women at the Ventura Division are moving in on still another area once dominated by men. They are coming up with money-saving ideas and earning top cash awards in the Suggestion Awards Program.

Of the \$644 awarded recently for cost-cutting ideas, the majority of that money—\$347—went to women. And four of the five who shared that \$347 work in the Plastics Fabrication branch.

Kay Widick was the biggest re-

cipient with a cash award of \$122 for her suggestion of buying perforated teflon for plastics work. Glen Schrouder won \$121 for suggesting a new tool.

Other Plastics Fab winners were Linda Bennett, \$52, and Sue Amison, \$19. The other lady suggester was Frances Rush of 747 Subassembly. She was on loan to 747 Final Assembly when she came up with an idea worth \$33.

(See SUGGESTERS, Page 6)

Credit Union Announces New Dividend

Members of the Ventura Division's Federal Credit Union received an annual average dividend of 5.2 per cent, they learned at their recent annual meeting.

"The ratio of net profit to gross income was the highest in five years," reported Credit Union President Johnnie Via.

This activity was accomplished "in spite of the rising costs of our economy," Mr. Via explained, as well as a net decrease

in loans compared to the year before.

The credit union loaned \$981,946.61 in 1968 compared to \$877,180.99 last year. There were 1,326 loans in 1968 and 1,192 in 1969. Total assets stood at \$1,031,968 for 1969.

Elected to the board of directors for two-year terms were Chuck Taylor, Florence Johnson and Warren Clymer. Holdover board members with another

year to serve include Mr. Via, Joyce Nelson, Earl Morgan and Sheldon Greenberg.

The full slate of officers was re-elected. They are Mr. Via, Mrs. Johnson, vice president, Mr. Taylor, treasurer and Mrs. Nelson, secretary.

Elected to join Leo Karas, Shirlee Combs and Peggy Miller on the Credit Committee were Ralph James and Joe Ferro. Office manager is Jan McClune. She is assisted by Peggy Heacock.

NORTHROP NOTES

—Division Highlights—

(Editor's note: Northrop News normally spotlights major events as they happen at each division through the pages of its family of publications. The interest of employees in what is happening at divisions other than their own has prompted us to launch a new feature. We will present, in capsule form, news highlights from throughout Northrop Corporation. This initial feature covers the weeks just past. Subsequent columns will be presented as fast-breaking news dictates.)

AIRCRAFT DIVISION HIGHLIGHTS

The USAF Systems Command has presented the Division the USAF Craftsmanship Award, symbolic of the highest possible achievement in individual craftsmanship. Recognition is for work on the F-5 and T-38 programs from June 1967 to May 1968. The award goes to contractors who provide the USAF with equipment of exemplary quality while keeping a critical eye on costs by doing the job right the first time.

The Aircraft Division will assist the Electronics Division in carrying out its role as prime contractor for the new Joint Services In-Flight Data Transmission System. The task involves the modification and flight test of two RF-4C aircraft to be used in the program.

ELECTRONICS DIVISION HIGHLIGHTS

Electronics Division's latest Voice Warning System, the Mark III, entered a formal military potential test program at the U.S. Army's Post at Fort Rucker, Ala. The new system monitors more than 60 independent potentially hazardous conditions related to the helicopter.

The world's largest airplane, the C-5 Galaxy, equipped with the Northrop inertial doppler navigation equipment, is now operational with the United States Air Force.

The Division has been licensed to build the Ferranti inertial navigation and attack system for the Harrier vertical short take-off and landing (V/STOL) aircraft.

Sikorsky Aircraft Division of United Aircraft Corp. selected Electronics to participate in a program to give the USAF HH-53C helicopter a full night and adverse weather operational capability. The program is called PAVE-STAR.

Contracts totaling more than \$7 million were awarded to four major subcontractors selected to assist the Division in building the Joint Services In-flight Data Transmission System (JIFDATS). The system being developed will allow data collected by reconnaissance aircraft to be transmitted to a surface terminal either directly or through a relay aircraft.

ELECTRO-MECHANICAL DIVISION

The Division continues its 15-year participation in the highly successful HAWK program with acquisition of a U.S. Army contract to manufacture and supply 98 sets of newly designed wing and elevon assemblies for the improved HAWK missile flight test program.

A new company, Northrop Services, Inc., has been organized as a wholly owned subsidiary of the Northrop Corporation and will operate as an entity of the Electro-Mechanical Division. The new company was organized to provide technical services, special engineering services and services to operate complex equipment and facilities in support of military services, NASA or commercial enterprises.

The Division announced the first of a new generation of automatic test, monitor and information systems. It is called the AM/PM Automated Maintenance and Performance Monitoring System (NAS 2070). It has a broad base technology and, depending upon programming, can provide total ship or aircraft performance monitoring and can display real time status information. It can also furnish failure trend information, operate a management information system, and perform as a multi-purpose instrumentation system.

VENTURA DIVISION HIGHLIGHTS

The parachute landing system for Apollo 13 has already been delivered to Cape Kennedy. This division has provided Earth Landing Systems for all of America's astronauts. Apollo 12, the second moon mission, was the 22nd successful exercise of a Ventura-produced landing system.

Now in Hawaii for operational trials is the Ventura-built Mark 30 underwater target. The torpedo-like vehicle simulates a submarine in target exercises for airplanes, surface ships and submarines. It can be pre-programmed to maneuver at the direction, depth and speed of a normal sub.

TWO SPECIAL EUROPEAN TRIPS SCHEDULED BY NRC TRAVEL CLUB

The Northrop Travel Club has set two special European trips on its vacation schedule. One is a special Northrop charter flight to London, England. The trip departs Los Angeles on May 31 and returns from London on June 29. The price is \$285.

Reservations can be made for this special flight at local NRC offices. A meeting at the NRC Clubhouse, 12626 Chadron Ave., Hawthorne, on Feb. 20, 7:30 p.m., will give all details.

The second trip is to Spain, Portugal and North Africa with a departure date of Aug. 22. The

22-day trip will cost \$695, plus \$49 tax and service charge. The itinerary includes London, Lisbon, Seville, Tangier, Casablanca, Madrid and Cordoba.

ARATA NAMED TO AIAA COMMITTEE

Winfield H. Arata, Northrop Corporation director of Aviation Ground Systems, has been named a member of the AIAA Technical Committee on Aircraft Operations.

Mr. Arata's appointment was announced by Ronald S. Melt, AIAA president.

FOR COMMUNITY SERVICE

'Weekend Teachers' Earn Praise

Northrop's W. H. Justice and J. J. Guiteras have received commendations for voluntarily teaching computer programming to Los Angeles area high school students in a unique weekend educational program.

Mr. Justice is a data processing specialist in the Scientific and Engineering Programming group and Mr. Guiteras is chief of the Program Performance and Evaluation group, both in Northrop Data Processing.

Each received a Certificate of Appreciation from the Los Angeles City School District. Mr. Guiteras has received two similar certificates in the past two years.

The program has many unusual aspects. Students receive no credit for completing it, only certificates. Instructors are all volunteers who hold important posts in industry and business. They give up three or more hours for teaching on Saturdays, plus necessary preparation time.

Classes are taught at six Los Angeles area junior colleges

which have computer facilities and available time for the program on Saturdays.

While students receive no official credit for the course, it continues to attract far more students than available facilities will accommodate.

Dave Randolph, coordinator of the program for the school district, said:

"Last semester more than 400 students were enrolled. We were

ways use additional experienced programming instructors."

The Northrop men became interested in the program through their affiliation with the Association for Computing Machinery. Mr. Guiteras is treasurer of the San Fernando Valley Chapter, Mr. Justice is a member of the Los Angeles Chapter. They teach at Pierce College and Trade-Technical College, respectively.

Mr. Guiteras says ACM chapters have long recognized the need for computer programming training for youngsters at the high school level. Each chapter has worked with the city schools to set up and man instructor's post for the program.

In time, Mr. Randolph says, the schools hope to include this instruction as part of their regular curricula. Until facilities and instructors are available, the weekend program is filling an important education "gap."

Exceptional

"My students have all been hard workers, self-motivated and dedicated. They are in the program because they want to learn. Their interest and enthusiasm is stimulating," Mr. Guiteras says.

"Students enrolled in my class come from an area that has serious social and educational problems. Their drive to learn and get ahead impresses me. Their interest in industrial application of what they are learning really keeps me on my toes," Mr. Justice adds.

Most classes in the program teach the FORTRAN language of computers and are broken into lecture and laboratory sessions. They run for the normal school semester in most cases.

Closed Circuit TV Will Watch Bridge Traffic

The U. S. Underseas Cable Corporation — a Northrop affiliate — will design, install and maintain a closed circuit TV system for the twin-span Delaware Memorial Bridge, Wilmington, Del.

The corporation's Land Communications Systems Division (LANDCOM) will install four cameras, one on each of the bridge towers. They will keep watch over a traffic flow that exceeded 15 million vehicles in 1968.

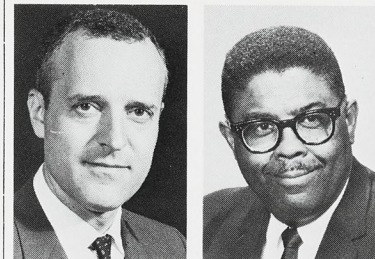
The cameras will enable the Delaware River and Bay Authority to direct and control traffic flow over the bridge which joins Delaware and New Jersey. This will insure quick reaction to traffic accidents, tieups and other problems.

The new system is expected to increase safety of vehicles using the twin-span bridge.

'HELLO DOLLY' TICKETS OFFERED

Northrop ticket outlets are offering discount ducats for the 5 p.m. March 7 performance of "Hello Dolly" at Grauman's Chinese Theatre, Hollywood.

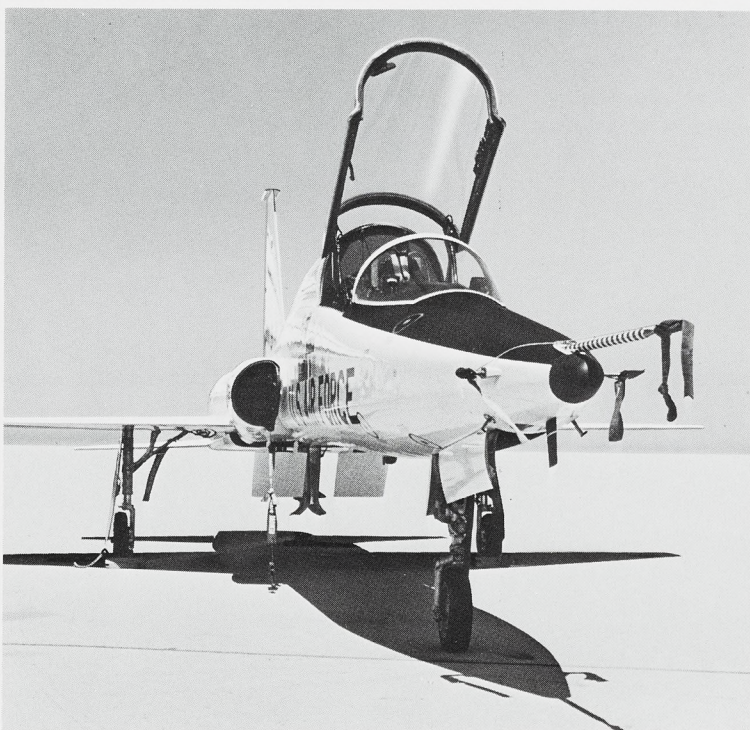
Regular \$3.50 reserved orchestra seats sell for \$2.80; regular \$3 reserved orchestra seats for \$2.40.



Mr. Guiteras

Mr. Justice

forced to turn away more than this number for lack of facilities. At present we are seeking the support of businesses with computers and space to expand the program further. And we can al-



FIRST T-38 IS STILL OPERATIONAL
"The Patriarch" flies chase and pace missions at Edwards AFB.

'Patriarch', First T-38, Still in Operational Service

They call it "The Patriarch." It was the first Northrop T-38 Talon jet trainer ever produced. It is still in operational service.

This fitting tribute to the sound design features and superior craftsmanship found in Northrop products represents an almost impossible accomplishment in an era of high-performance military aircraft.

"The Patriarch," the first of more than 1,100 Talons manufactured to date, joined the USAF Dec. 28, 1959. For 23 months it went through an extensive Category I and II USAF flight test evaluation program.

"The Patriarch" is the only single-seat Talon in service. It was delivered with the rear cockpit packed with about 575 pounds of flight test instrumentation and other recording equipment.

In this configuration, it has continued to serve the USAF Flight Test Center as a chase and pace aircraft. It flies regularly under the control of students of

the Aerospace Research (Test) Pilot School.

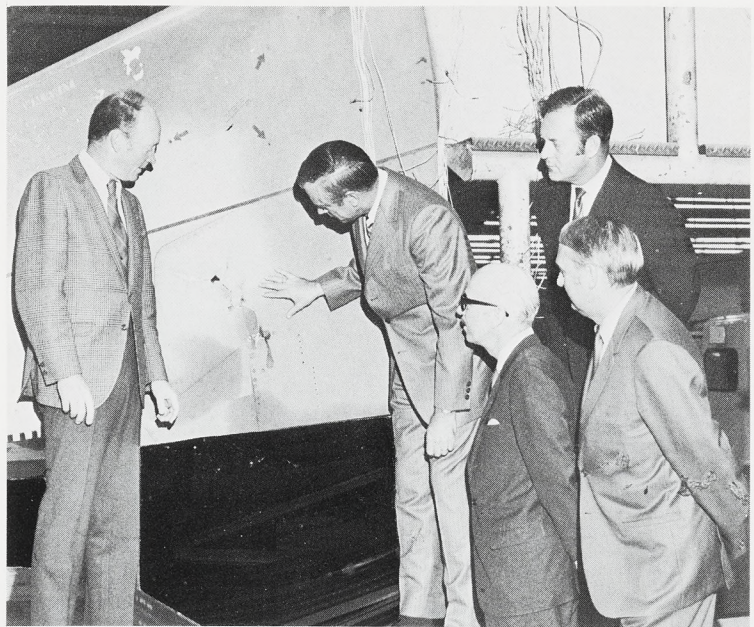
And it is interesting to note that of the original 11 production test T-38 aircraft contracted for on May 14, 1956, nine are still in operational service.

TWO AIRLINES SET 747 DEBUTS

The inauguration of Boeing 747 commercial jet service by Pan American World Airways last month will be followed shortly by two additional airlines that have announced initial 747 jetliner flights.

Trans World Airlines announced a Feb. 25 starting date for daily nonstop round trip service between Los Angeles and New York. This will be followed March 18 by New York-London flights and April 3 by New York-Paris hops.

American Airlines will introduce the Boeing 747 March 2 in daily round trip flights — Los Angeles to New York.



INSPECTING SERVICE DAMAGED F-5 WING
From left, Gene Judd, AFPRO, R. W. Young, D. G. McNeal, E. J. Bailey, AFPRO, and V. G. Cardoza.

Damaged F-5 Wings Being Repaired at Large Saving

The joint effort of Aircraft Division and Air Force Quality Assurance personnel will put four service-damaged F-5 tactical fighter wings back into commission at 35 per cent less than their replacement cost.

The four wings are from Military Assistance Program (MAP) aircraft which were damaged in service overseas.

Upon receipt of the wings, an extensive survey was made by Northrop's Advanced Production, Quality Control, and Engineering to determine the extent of damage. Following evaluation of the findings, and consultation with Air Force representatives, the decision was made to repair, rather than replace, the wings.

Close teamwork followed. Manufacturing submitted material lists and labor estimates. Engineering decided which parts could be repaired and furnished instructions for the work. Quality Control furnished inspection hours estimates, plus documentation for

the repair and inspection to follow.

The completed estimates were given to Contract Administration for submittal to the Air Force at San Antonio Air Materiel Area. With approvals, skilled mechanics and an inspector highly qualified in structural repair were assigned to the project.

A Team Effort

Aircraft Division Quality Control is working closely with Air Force Quality Assurance throughout the repair cycle to assure that the quality of the repaired wings meet the quality standards of regular production F-5 aircraft.

The four wings on hand will be repaired in Hawthorne. However, this is only one phase of the Aircraft Division's support capability. Northrop is geared to support MAP aircraft around the world, either with in-plant repairs, similar to the wing job, or through field crews performing technical order modifications at the aircraft's home base.

SAFETY OFFICERS VISIT AIRCRAFT DIVISION

Five United States Air Force officers from the Directorate of Aerospace Safety, Norton AFB, Calif., visited the Aircraft Division earlier this month to be briefed on future Northrop fighter aircraft.

The visitors were briefed by E. D. Jacobs and A. L. Roth, and hosted at lunch by W. E. Woolwine, vice president, Engineering; R. A. Graham, Advanced Air-

craft Systems Requirements; and U. H. Montgomery, resident representative, Directorate of Aerospace Safety.

Attendees included Colonels W. Savidge, Jr., chief, Fighter Branch; W. J. Murphy, Jr., chief, Flight Safety Division; Lt. Colonels D. A. Rook, engineering officer; L. T. Cooper, T-38/F-5 project officer; and Maj. R. M. Greene, system safety engineer.

Credit Union Board Re-elected At 24th Shareholders' Meeting

Northrop Credit Union shareholders, gathered Feb. 3 for their 24th annual meeting, returned their entire board of directors to office for another term.

Subsequently, board members named R. D. Hampton, president; H. J. Grothmann, vice president; and Mary B. Delaney, secretary-treasurer, to head Credit Union activities for 1970.

Board members include Mr. Grothmann and G. W. Thornton of Northrop Data Processing, R. A. Lindsey of the Electronics Division, L. L. Cripe, D. H. Grothe, Mr. Hampton, J. J. Richardson and W. D. Schramm of the Air-

craft Division, and Mrs. Delaney of the Credit Union staff.

The Credit Committee for 1970 includes H. L. Cook and G. F. Kasson of the Aircraft Division and W. H. Young of Northrop Corporate Laboratories. Mr. Cook is chairman.

Also Serving

The Supervisory Committee is comprised of A. W. Johnson of the Electro-Mechanical Division, H. A. Ralles and E. R. Foord of the Aircraft Division, J. J. Guiteras of Northrop Data Processing, and W. J. Crown of the Corporate office. Mr. Guiteras is chairman and Mr. Crown is secretary.

The board also named as subordinate officers: W. H. Morris and Florence Montgomery, assistant treasurers; Catherine Walker, cashier; and Helen M. Walker, chairman of the Membership Committee.

W. D. Schramm, the 1969 president, reported on these significant Credit Union changes for 1969: extension of the loan policy to include loans secured by stock for purposes other than purchase of stock; approval to grant secured loans to retired Northrop employees; institution

of Norcredit; and a change in the payment of dividends from an annual basis to a semi-annual basis. Also approval of a dividend of 6½ per cent for 1969.

In the treasurer's report for 1969, Mrs. Delaney noted that despite a national trend of "tight money" the Credit Union continued to grow without an increase in interest rates.

She reported that 11,899 depositors were on record at the end of 1969 and 8,746 borrowers were using Credit Union services. She reported that assets topped \$8.6 million; shares represented more than \$7.7 million; and that the total of loans made shows a cumulative total of more than \$9.1 million.

Harvey L. Cook, Credit Committee chairman, reported Northrop employees still consider the Credit Union a logical place for loans. He said that 11,161 loans were approved for the entire year. This represented a 5.7 per cent increase over the previous year, with the amount of dollars loaned up by 15.7 per cent over the previous year.

Mrs. Delaney said that the Credit Union's 1969 annual report would be distributed with regular statements during April.

Page Makes Vice President Appointments

Northrop Page Communications Engineers, Inc., has announced the appointments of James S. McLeod and John B. Campbell to positions as senior vice presidents.

Mr. McLeod assumes total responsibility for the design, engineering and activation of Page communications systems around the world. He joined Page in 1955 and has served as vice president and senior director of Engineering since 1963.

Mr. Campbell has served as vice president for Finance and Management Service since 1964. In his new post, Mr. Campbell will hold responsibilities for accounting, company policies and procedures, legal and contract administration, plus financial planning and control.

BIGGER TANKERS NEEDED FOR 747

Tank trucks, designed for airport refueling of the giant Boeing 747 jetliner, reflect the size of the new superjet.

Each of the fuelers can carry 10,000 gallons, plus an equal amount of fuel in a trailer. They can refuel the superjet in 20 minutes, pumping at 1,200 gallons per minute each or double the rate of trucks used today for aircraft refueling.

A truck-trailer combination can deliver, in 20 minutes, as much fuel as a family automobile uses in 50 years of average service—enough to carry the car 600,000 miles.



NORTHROP HOSTS JAPANESE BUSINESSMEN
Frank Smith and Fred Meuter, standing, discuss compensation.

Japanese Management Association Members Visit, Receive Briefing

Northrop Corporation was host Jan. 30 to a Japanese Management Association Personnel Management and Industrial Relations Study team.

Twenty Japanese firms were represented in the team which heard Frank R. Smith, Corporate director of Industrial Relations, and Fred Meuter, acting Corporate director, Personnel Compensation, discuss salaries and wage systems administration, present and future, and management philosophies toward workers and unions in the United States.

The association is the oldest management organization in Japan. One of its main purposes is to exchange ideas and share experiences with their American and European counterparts.

RESERVATIONS FOR LAS VEGAS OPEN

Reservations are now being accepted by Personnel Activities for an April 17-19 group tour to Las Vegas.

The \$39.50 price includes round trip bus fare, lodging at the Hacienda Hotel, a late show, and a host of other "goodies."

A \$15 deposit is required.

The Northrop briefing was part of a two-month visit by the association to leading corporations in the United States and Europe.

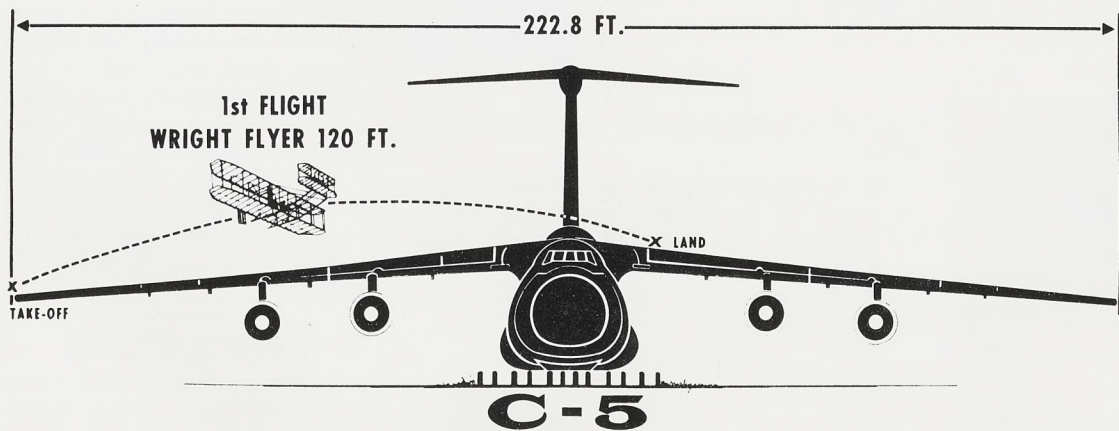
Page to Build South Pacific Communications

Page Communications Engineers Pty. Ltd. (Sydney), subsidiary of Northrop Page Communications Engineers, Inc., has been awarded a contract for the design and installation of a communications system on the Island of Bougainville in the South Pacific.

The new system will carry voice and telegraph communications and the contract includes the supply and installation of all switching and private automatic branch (PABX) equipment plus the installation of telephone and teletype machines.

The communications system will link the Bougainville mine site at Panguna, the harbor complex at Anewa Bay, the township of Kieta and will tie in with the government communications system at Kieta. Page will also maintain and operate the system.

You've Come A Long Way, Baby



THE HISTORY OF AIRPOWER began 66 years ago with the Wright Brothers, Orville and Wilbur. They believed man could travel places by flying. While other people laughed, they designed and built the first powered airplane. At Kitty Hawk in North Carolina, the Wright brothers made their dreams come true. On Dec. 17, 1903, Orville flew the "Wright Flyer" in the first powered flight by man. He flew only 120 feet, slightly more than one-half the 222.8-foot wingtip-to-wingtip distance of the USAF Lockheed C-5 Galaxy. Northrop builds the inertial doppler navigation system and related aerospace ground equipment for the C-5 at the Electronics Division.

Leonard Kent's Career in Aviation Spans 37 Years

When Leonard A. Kent went to work for Jack Northrop in 1933 he had no idea that the comparatively small aircraft then under construction would grow into the giant Boeing 747 that he worked on until his retirement last month.

"None of us thought that airplanes would grow much bigger. Jet propulsion had not been invented then," he recalled.

The first plant he worked in was located across the street from the present North American-Rockwell plant, Los Angeles. It was a former bus fabrication plant. As he recalls, the engineers worked upstairs while construction work was carried on below where buses formerly were built.

He had never worked on aircraft designs before. "I just went to the door and asked for work.

They hired me," he said.

When Douglas took over the Northrop plant, he was transferred to Douglas. After working on several aircraft for Douglas, Mr. Kent then worked for North American, Lockheed, Doak Aircraft, and others. Then in 1953 he came to Northrop, rejoining many engineers he worked with at North American before the new Northrop Corporation was formed.

Here his work included the Falcon missile launcher, the Snark, the T-38 and parachute designs for the radio-plane and the F-5. In 1966 he joined the 747 program, spending eight months at Boeing, Seattle, before returning to Hawthorne. His last job was senior lead engineer on the 747 Floor Panel section.

Although he has been intimately associated with aircraft development for 37 years, Mr. Kent refuses to make a prediction about future trend in aircraft design. "In 1933 I couldn't see how aircraft could go much faster and get much bigger. I was so wrong then that I'd rather not make another guess. I will say that it will probably surprise everyone as much as today's developments surprise me now."

TOASTMASTERS

Northrop Toastmasters installed a new slate of officers to serve for the next six months at a special installation dinner Jan. 31 at the Sojourn Inn.

Alan Caterson, president; Roy Gordy, educational vice president; Max Share, administrative vice president; Paul Schmid, secretary; Jim McDaniel, treasurer; and Gordon Plank, sergeant-at-arms, were installed.

Felix Dunnett served as toastmaster of the evening.

Jeanne Lowrie Commended for High Test Score

Jeanne Lowrie, 17-year-old daughter of Dr. Robert E. Lowrie, manager, Metallurgical Research Laboratory, received a Letter of Commendation for her high performance on the 1969 National Merit Scholarship Qualifying Test.

Miss Lowrie, a senior at Sunny Hills High School, Fullerton, was chosen from among 39,000 students who scored in the upper two per cent on the test. They were ranked just below the 15,000 semi-finalists selected last September by the National Merit Scholarship Corporation which administers the tests.

As a result of the commendation, Miss Lowrie has been offered a scholarship by Pepperdine College in Los Angeles.



STILL CHUGGING AFTER 48 YEARS
Bill Pearson in his restored 1922 Model T center door.

PERFECTLY RESTORED

Model T Still Chugging After 48 Years

It only took Henry Ford four hours on the assembly line to build Bill Pearson's sedan back in 1922, but it took Bill one year to rebuild it. "Of course," Bill added, "he had parts handy. I had to find mine."

The 48-year-old center-door Model T sedan has been completely restored to new condition. The only part of it not original are later model brake drums which Mr. Pearson installed for safety on modern highways. The Model T is not just a show car. He drives it regularly.

Bill bought the Model T from its original owner in 1953 after it had sat unused in a barn since 1929. He found it during a senior class outing in Northern Michigan.

"I asked how much and the

owner said, 'Twenty-five dollars.' "I couldn't say 'sold' quick enough," Bill said.

"I was so anxious to get it running that I forgot that the oil had been in the crankcase for 24 years. It had thickened and had a lot of water from condensation during its long storage. I got it running without a lot of trouble but immediately burned out the rods."

Parts for these old cars are not hard to obtain. He picked up many of them at old car swap meets. His membership in the Orange County Model T Club was also a help. From other members of the club he picked up information, reproductions of old motor manuals and odd parts that helped in the restoration. The club also sponsors meets and old car

drives in which he joins. On these cross-country drives he can make a top speed of 45, but finds 30 easier on both car and driver.

Now that he has completed the 1922 Model T, Bill has decided to go more modern. He is restoring a 1930 Model A deluxe roadster and expects to complete it in about a year.

Mr. Pearson is a development machinist in the Electro-Mechanical Division's Model Shop in Anaheim.



TUNING UP
Pearson checks Model T engine.

WE ASKED THEM—Do You Foresee A "Cashless Society" for The United States?



Tom Koenig, general foreman, Electronics:

I don't think so. Most businesses that have dealings with the public are getting more and more discriminate about accepting checks. They might put up with a cashless society for awhile, but after being taken a few times, I think they would once again demand cash for their services.



Martin Cook, engineering technical assistant, Electronics:

I think we're heading that way, but I don't think I'll ever see it in my lifetime. Of course, there would be certain disadvantages to not having any cash, such as how do you get a candy bar out of a vending machine?

Dolores McFarland, Reproduction clerk, Electro-Mechanical:

I certainly hope not. I don't trust myself with too many credit cards. It's too convenient.



John Valeska, machinist, Electro-Mechanical:

I think the day is coming when everyone will get a printed credit card instead of a salary. It'll buy everything for you. In the old days there was a system something like that in use in the coal mining industry.



Leah Alter, senior secretary, Aircraft (Edwards AFB):

No. The accounting involved would be just too much, for the business and the individual. We spend our money in too many places for too many things. Besides I work hard for my money. I like to have it around, look at it and hold it—when I can.



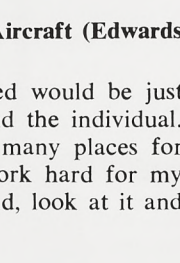
Wally Walensky, data processing specialist, Northrop Data Processing:

Perhaps in some form, but not a total system. There is the basic problem of overcoming the human element. Surely you'll get a group to take a firm stand against it. But it does hold promise—a great reduction in paperwork for the individual and businesses and you could get an instant accounting of your assets.



Ann Kent, group clerk, Ventura:

It could possibly be. However, it may be dangerous because people might find it too easy to spend money.



Loyal E. Adams, Facilities and Records clerk, Ventura:

In about the year 3000 people will do away with money and just trust each other. As for in the near future in credit cards, I think that thing has just about run itself into the ground. More and more people are using credit less and less.

Bradley Cain Joins Schools' Honor Orchestra

Thirteen-year-old Bradley Cain, son of Elmer Cain, engineering specialist, Communications and Navigation, has been accepted as a member of the 1969-70 All-Southern California Junior High School honor orchestra.

The honor orchestra is composed of outstanding junior high student musicians from the 11 counties in Southern California.

Bradley began studying music with his mother, Joan Cain, who is first flutist with the La Mirada Symphony Orchestra. Mrs. Cain is a former Northrop employee who worked in Special Weapons for four years.

DANCE CLASS

A new series of NRC-sponsored ballroom dancing classes opens a 10-week run Feb. 24 at the VFW Hall, 4563 W. 131st St., Hawthorne.

Advanced eastern swing will be offered at 8 p.m.; the silver tango at 9:30 p.m. The cost is \$7.50 per person or \$10 per couple for the 10 weekly sessions.

Classified

Classified ad service is provided free of charge to all Northrop personnel. Ads for agencies, commercial enterprises and private businesses are not accepted. The Northrop News reserves the right to edit or omit ads. Obtain ad form C67 from organization clerk and mail to Northrop News, 170, zone 62. Ads are limited to one item and one ad per person each issue. Deadline is noon Wednesday, one week before publication.

Automobiles For Sale

Ford, 1964 Falcon Futura, \$495. 213-374-7165. A
Volkswagen, 1964 Squareback 1500 S, \$995. 213-377-4164. A
Buick, 1962 Special, 60,000 mi., needs paint, \$300. 213-545-5100. A
Volkswagen, 1965, new paint, \$1,000. 213-379-7557. A
Daihatsu, 1960, tri-mobile, new batt., \$75. 213-325-9248. A
Volkswagen, 1969, auto. stick shift, \$1,950. 714-592-5485. A
Datsun, 1967 roadster, r/h, 23,000 mi., \$1,650. 213-323-9076. A
Pickup, 1959 ¾-ton Chev., w/pullman camper, many extras, \$1,100. 213-675-8390. A
Oldsmobile, 1962 88, 2-dr. h/top, p/b, p/s, \$560. 213-644-8758. A
Buick, 1939 coupe, 5 new tires, \$350. 213-324-7698. A
Volkswagen, 1967, wood steering wheel, new tires & batt., \$1,195. 213-327-2507. A
Peugeot, 1959, eng. reworked, \$180. 213-326-6195. A
Volkswagen, 1967, 42,000 mi., radio, \$1,225. 213-786-1752. A
Pontiac, 1965 GTO, auto. trans., r/h, a/c, \$995. 213-676-0055. A
Station Wagon, 1957 Chevrolet, 283 eng., 4-bbl. carb., r/h, \$325. 213-927-0678. A
Volkswagen, 1957 sedan, \$130. 213-676-1018. A
Ford, 1961 4-dr. Galaxie, V-8, auto., \$375. 213-830-4127. A
Chevrolet, 1964 Impala, 370 h.p., new tires, \$700. 213-671-6484. A
Metropolitan, 1960, \$250. 213-370-7600. A
Dodge, 1961, 4-dr., 6-cyl., motor tuneup, \$495. 213-674-0852. A
Fiat, 1962 roadster, paint, top & motor 1 yr. old, \$350. 213-921-3394. A
Chevrolet, 1962 Impala SS., full power, air, \$495. 213-421-0900. A
Pickup, 1963 Ford, ½-ton, many new parts & paint, \$875. 213-831-4586. A
Pickup, 1958 Chev., 6 cyl., 3-spd. stick, o/hauled recently, \$300. 213-327-1975. A
Ford, 1965 Galaxie 500, 2-dr., auto. trans., p/s, AM-FM, \$975. 714-968-5343. A
Volkswagen, 1966 fastback, 1600 t.i., d/brakes, \$1,250. 714-524-6638. A
Pontiac, 1967 Tempest o/head 6, new tires, 34,000 mi., \$1,195. 805-498-8461. A
Pickup, 1965 Chevrolet, ½-ton, V-8 eng., 8' bed, \$1,500. 213-323-5245. A
Scout, 1962 International, 4 w/d, r/h, travel top, 9:15 tires, \$800. 714-638-4623. A
Ford, 1959 Fairlane 500, r/h, p/b, p/s, auto. trans., 2-dr. h/top, \$250. 213-756-1812. A
MGB, 1967 G.T., wire whls., 31,000 mi., \$1,900. 714-644-2887, 213-329-2926. A
Station Wagon, 1957 Chevrolet, \$200. 213-371-8590. A
Dune Buggy, Max, removable top, extra whls. & tires, \$2,200. 213-371-9966. A
Volkswagen, 1962, \$300. 213-322-3249. A
Cougar, 1967, a/c, V-8, 4-spd., tape, d/brakes, \$1,985. 213-372-1386. A
MGA, 1958 convt., eng. recently o/hauled, \$900. 213-423-1363. A
Cadillac, 1960, 4-dr., all power, \$625. 213-371-0048. A
Chrysler, 1964 New Yorker, \$400; Pontiac, 1968, Le Mans, \$1,445; Grand Prix, 1969, \$3,295; min. bids. Credit Union ext. 1117. A
Ford, 1965 Mustang, auto., r/h, \$995. 213-377-4251. A
Plymouth, 1967 GTX, auto. trans., 440 cu. in., \$2,000. 213-674-2803. A
Corvette, 1965, cpe., fuel injected, 4-spd., posit., AM-FM, many extras, \$2,995. 213-835-5052. A
Austin America, 1969, take over \$50.87 mo. pymts. or \$1,600. 213-675-7410. A
Ford, 1966 LTD, 4-dr. h/top, a/c, p/s, p/b, radio, \$1,495. 213-370-0197. A
Cadillac, 1960 convt., \$550. 213-783-0518. A
Oldsmobile, 1968 Cutlass S, 2-dr. h/top, pwr. s/b, fact. air, r/h, auto., 350 cu. in. eng., \$2,495. 805-495-5847. A
Saab, station wagon, 1968, low mileage, Pirelli tires, \$1,900. 213-676-5425. A
Buick, 1956 Century, \$175. 213-320-7482. A
Porsche, 1967 912, 4-spd., AM-FM radio, \$4,100. 213-375-4477. A
Dodge, 1965, 6-cyl. auto., console, r/h, \$995. 213-324-9963. A

Household Items For Sale

Sofa, brown, 7' satin-finish naugahyde, \$65. 213-371-0136. B
Bedroom Set, Century cherrywood, his & her dresser, 2 bedside stands, queen size bed & h/board, \$375. 213-672-1968. B

Household Items For Sale

Dishwasher, Kitchen-Aid, portable, \$50. 213-474-7836. B
Washer, G.E. auto., w/water saver, \$35. 213-676-3862. B
Range, gas, Wedgewood, 4-burner, center grill, \$55. 213-379-2980. B
Coffee Table, 6', pecan, \$75. 213-675-4892. B
Freezer, upright Frigidaire & refrig., auto. defrost Coldspot, \$200 or sell sep. 213-375-6467. B
Toaster-Broiler-Oven, Crown, 5 yr. guarantee, \$12. 213-645-7972. B
Tables, 3 living rm., Lane walnut, modern, \$75. 213-325-3237. B
Chair, avocado green vinyl recliner, \$50. 213-320-4726. B
Stereo, Morse console, AM-FM radio, bltin bar, \$200. 213-632-2661. B
Washer, auto. Maytag Super Highlander, Model A-500, \$150. 213-532-1344. B
Dinette Set, Virtue Bros., chrome, table 36" x 47" w/extra ext. leaf, 4 chairs, yellow, \$40. 213-676-1985. B
Range, gas, 42" Wedgewood, white, rotisserie, 2-oven, & broiler, \$150. 213-582-1079. B
Dryer, Kenmore, elec., 230 v., \$30. 213-835-6492. B
Range, Gaffers & Sattler, 5-burner, w/griddle, coppertone, \$70. 213-755-7521. B
End Tables, 2-step, & round coffee table, Mersman mahogany, formica tops, \$35. 213-644-1581. B
Refrigerator, 1968 Westinghouse, 16 cu. ft., deluxe frostfree model, used 6 mos., \$185. 213-322-4383. B
Refrigerator & stove, Sears models, \$100. 213-676-7328. B
Sofa & chair, modern, mfg. by Kroehler, \$75. 213-327-2279. B
Davenport & end table, curved sectional, loose pillows, light beige, walnut table, \$80 or sell sep. 213-674-7743. B
Stove, O'Keefe & Merritt, gas, \$50. 213-324-2021. B

Miscellaneous For Sale

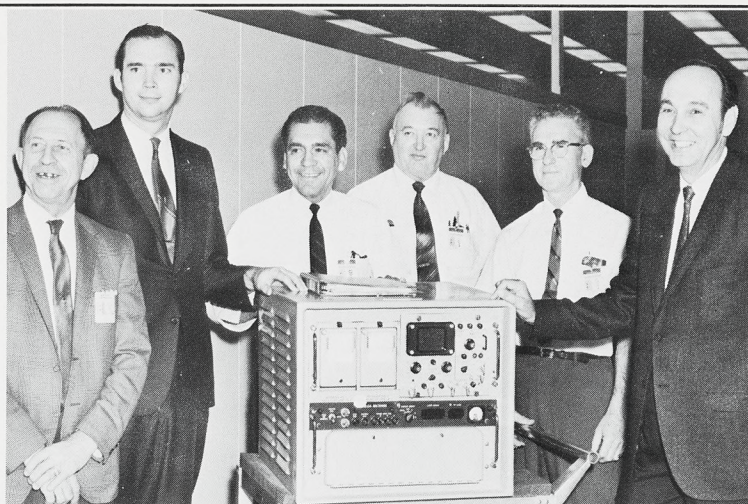
Camera, Ansco Lancer, sclar lens, light-meter, flash attach., case, \$25. 213-596-8947. C
Books, 3 trunks full, hard & paper back, \$50. 213-295-0778. C
Transmitter, Johnson Viking desk kilowatt, \$425. 714-633-1037. C
Dog, male, part cocker, part poodle, blonde, 1 yr. old, \$20. 213-679-5177. C
Rug Protector, 35" x 44" clear plastic, for use w/desk, \$15. 213-676-3050. C
Traction Equipment, complete, used 1 month, \$50. 213-882-0761. C
TV, 25" Silvertone console, \$60. 213-675-6020. C
Drafting Machine, Bruning, 12" & 18" alum. scales, used 6 mos., \$100. 714-893-2071. C
Mags, 4 Ansen Sprint, 14" Ford, \$125. 213-671-7875. C
Motorcycle, 1964 Yamaha, 250 cc, elec. start., \$250. 213-377-3532. C
Cabin, A-frame, in Running Springs, 1,060 sq. ft., view, lge. porch, f/place, wooded, \$3,500 dn., \$19,500. 714-635-0853. C
Revolver, 38 Special, 4" bbl., dble. action, box of shells, \$70. 213-329-2016. C
Motorcycle, 1969 Yamaha, 125 cc, tune exhaust, fork brace, \$450. 213-377-5694. C
Travel Trailer, 1969 22', self contained, twin beds, sleeps 4, \$3,700. 213-428-5629. C
Motorcycle, 1968 Honda, 160 cc Scrambler, \$300. 213-371-4284. C
Books, science fiction, approx. 2,000 paperbacks, \$5 hundred. 213-372-6740. C
Brace, h.d. ratchet-type w/set of 13 wood bits, \$20. 213-754-1089. C
Camera, Yashica J-5, single lens, reflex, \$50. 714-547-0411. C
Golf Clubs, Walter Hagen, steel shaft woods, #2 & #4, \$15. 213-377-2160. C
Micrometers, Starrett, w/calibration stds., outside 0 to 4", inside 0 to 7", \$80. 213-323-5484. C
Organ, Conn, electronic, artist model, 12 yrs. old, w/Leslie spkr., \$900. 714-524-2128. C
Hearing Aid, w/5 batteries, never used, \$60. 213-549-0849. C
Gun Cabinet, screened glass, \$60. 213-645-7522. C
Tricycle, small & med. size, \$15 or sell sep. 213-388-4679. C
Pups, German shepherd, black & tan, \$25. 213-547-4671. C
Camper, 8' Lance sleeper, 1 yr. old, \$475. 213-324-3978. C
Construction Lumber & plywood, \$75. 213-675-6668. C
Lawnmower, power, Briggs & Stratton gas eng., reel type, 20" wide, ratchet starter, \$30. 213-375-6645. C
Golf Clubs, Haig Ultra, woods 1, 2, 3, 4, 2-9 irons, p.w., s.w. stiff shaft, D3, \$85. 213-644-6966. C
Desk, 2 junior size, 20" x 42" formica top, metal frame, \$7 ea. 213-833-4191. C
Guitar, Gretsch w/case, Silvertone amp., \$175 or sell sep. 714-528-6461. C
Sailboat, Venture, 21', on trailer, 3 h.p. Sea Gull motor, anodized mast & boom, life jackets, \$1,950. 213-869-4608. C
Boat, 14' & trailer, \$100. 213-596-0019. C
Motorcycle, Honda S-90, \$200. 213-377-5897. C
Home, 3-bdrm., fam. rm., 1½ baths, f/place, bltins, f.a. heat, o/sized lot, pool, covered patio, \$32,950. 213-329-6625. C

Miscellaneous For Sale

Boat, 30' Chris Craft cruiser, twin screws, sleeps 6, \$6,500. 213-676-8331. C
Train Layout, H.O., on 8" x 100" table, switches, hills, bldgs., transistor power, \$350. 213-833-3402. C
Movie Camera, 8mm Yashica, & 8mm movie viewer, batt. operated, \$9 ea. 213-327-4585. C
Houseboat, 45', twin Chrysler V-8 engs., many extras, can work out equity, take over \$280 mo. pymts., \$21,500. 213-834-2845, 213-941-3804. C
Acreage, 2½ acres fronting on Adelanto Airport runway M-1, \$50 dn., \$50 mo., \$5,000. 213-378-1026. C
Walker, Everest & Jennings, folding, \$65. 213-324-1908. C
Trailer, 1-wheel, all metal, good tire, \$40. Box 301. C
Dog, Weimaraner, AKC, male, 8 mos. old, all shots, \$75. 213-676-2462. C
Motors, elec., ¼ & 1 h.p., \$15 & \$25. 213-545-6719. C
Saw, 10" DeWalt radial arm, w/stand, Black & Decker 17" arm, \$150. 213-378-2337. C
Hi-Fi components, tuner, Fisher FM-90, 15 cu. ft. spkr. box w/15" & 16" dia. Bozak spkrs., record player, other access., \$160. 213-376-2190. C
Helmets, 2 arc welder's, \$3 ea. 714-838-7161. C
Acreage, 112 acres, w/house, 3-bdrm., will divide, 1¼ mi. from recreational river in Grants Pass, Ore., \$35,000 or \$375 acre. Box 302. C
Travel Trailer, Santa Fe Cub, 12', many extras, \$650. 213-630-4700. C
Pool Table, 4'x8', w/ball return, \$75. 213-672-2370. C
Rearend, 4.11 Chev., fits 1955-1964 sedan & wagon, \$35. 213-325-3675. C
Own-Your-Own Apt, 2-bdrm., 2 baths, all elec., dps., cpts., patio, pool, party rm., hobby shop, enc. 2-car gar., newly decorated, adults, can carry papers, \$24,000. 213-327-8047. C
Ping Pong Table, regulation size, 2-sec., folding tubular legs, masonite top, 4 paddles, net set, \$15. 213-372-7270. C
Baby Carriage, w/mattress & canopy, collapsible, will convert to bassinette, \$35. 213-370-3293. C
Stereo Console, AM-FM radio, record changer, 6 spkrs., cherry finish cabinet, \$50. 213-320-1534. C
Seat, drummer's folding-type, \$5. 213-633-6106. C
Stereo, Morse table model, 8 spkrs., plays all size records, never unpacked, \$150. 213-320-1467 days. C
Camping Stove, propane, \$10. 213-532-1885. C
House, 3-bdrm., Palm Springs model, f/place, patio, adjacent to 18-hole golf course & Dominguez State College, \$26,950. 213-323-8331. C
Motorcycle, 1966 Honda, 160cc, \$160. 213-376-4250. C
Bicycle, girl's 26", converted to boys, \$4. 213-472-2031. C
Piano, upright, mahogany, 3 pedals, all keys, made by Horace Waters & Co., 4½' tall, 5' wide, \$150. 213-325-3404. C
Trailer, 15' La Cabana, sleeps 5, water tank, pump, butane stove, other extras, \$450. 213-676-3388. C
Pups, miniature Dachshund, AKC, female & male, \$50. 213-377-5748. C
Bottle Cappers, \$2 ea. 213-376-4831. C
Step Ladder, mahogany, 4 steps, \$15. Box 303. C
Camera, Rolleiflex 3.5 w/400mm Zeiss telephoto, Heiland strobe, access., \$95. 213-374-3691. C
Motorcycle, 1969 Honda, CL350, roll seat, new bars & pipes, elec. start., \$625. 213-532-5779. C
Piano, upright, \$250. 213-696-7529. C
Mini-Bike, Taco 44, 3 h.p., new starter & muffler, d/brakes, \$120. 213-676-3379. C
Boat, 13' Glasspar, 18 h.p. Evinrude, tilt trailer, \$445. 805-498-6889. C
Communications Receiver, 1968 Hallicrafters SX-130 w/spkr., \$100. 213-375-8834. C
Rifle, 30-30 Winchester, lever action, never been fired, 3X scope, case, cleaning kit, ammo, \$100. 213-757-2955. C
Radio, AM pushbutton, w/spkr. from 1970 Chev., never used, \$20. 213-391-5940. C

Wanted to Buy

Speed Equipment for '68 Charger RT, 440 eng., good, used 3:90 or 4:10 rearend gears. 213-323-4257. D
Piano, upright, good condition & metronome. 714-528-1919. D
Air Compressor system for paint spraying. 213-370-7092. D
Bicycle, multi-speed, in good condition. 213-644-4254, 213-644-8406. D
Camera, Speed Graphic, 4" x 5", older model. 714-635-7975. D
Dryer, good, gas. 213-329-4200. D
Typewriter, elec., & mini bike carrier for rear bumper of car. 213-378-5494. D
Truck, late model crew cab, prefer auto. trans., 4-whl. drive, 8' bed. 213-832-0025. D
For Trade
Drafting Machine, Bruning, trade for power saw or ladies' 3-spd. bicycle. 213-242-2957. E
Free (To Be Given Away)
Box Springs & mattress. 213-644-2668. F



THE 140th AN/SRN-12 Marine Omega receiving set is inspected prior to shipment by, from left, George Boughton, DCASR representative; Warren Weimer, Production Test; Hector Castaneda, technician; E. F. Bennink, general foreman; Paul Dudley, line foreman; and Vic Moore, project engineer.

U.S. Navy Gets 140th Omega Navigation Set

The 140th AN/SRN-12 Omega radio navigation set to be built by the Navigation department has been delivered to the U. S. Navy.

Electronics Division is under contract to the Naval Electronic Systems Command, Washington, D. C., to produce the navigation receivers for the first series of Navy ships to receive the new Omega system.

According to Vic Moore, project engineer, a number of Northrop-built receivers have already been installed aboard Naval vessels and are working perfectly.

"One particular set, located in the Navy's Omega project office in Washington, D. C., has accumulated more than 7,000 hours without a failure," Mr. Moore said.

The project office set is used by the Navy to monitor stations,

create training films for navigation and maintenance personnel and to conduct demonstrations for visiting personnel.

Omega enables a ship at sea, anywhere in the world, to determine its position, within one mile by day and two miles by night, and in any weather, according to Al Eldridge, Omega Marketing manager.

More Planned

"The AN/SRN-12 receives signals from Omega navigation system transmitters," Mr. Eldridge said. "Four of these are presently operational in Hawaii, New York, Trinidad and Norway, and provide coverage of all of the Northern Atlantic and Northeastern Pacific shipping lanes. Four more transmitting stations are planned to complete global Omega coverage."

Rentals Offered	Personals
Vacation Cabins , Idyllwild, 1 & 2 bdrm., stream, patio, f/place, \$30-\$35 w/end; \$70-\$90 wk. 213-868-8040. G	My family & I wish to thank our friends at Northrop & the NRC for the many expressions of sympathy & plant sent to my mother upon the passing of our father. PATRICK McCLEARY. L
Apt , ocean front, 1-bdrm., cpts., dps., bltins, furn., utils. paid, in Playa del Rey, \$169 mo. 213-823-5526. G	Our sincere thanks to Gerry's friends at Northrop for the kindness, sympathy, cards & flowers after the loss of our husband & father. MRS. GERALD KNOWLES & CHILDREN. L
Apt , 2-bdrm., cpts., dps., bltins, sound-proofed, closed gar., small b/yard, \$155 unfurn. 213-375-9397, 213-375-2091. G	I wish to sincerely thank all my wonderful friends for the money tree, cards, gifts and retirement party. I truly appreciate the thoughtfulness of everyone I worked with all the years at Northrop. GERTRUDE SMITH. L
Metal Detectors , Goldak Model 720, \$12.50 day; \$20 w/end; \$60 wk. 213-674-8088. G	
Cabin , Big Bear Lake, \$30 w/end. 213-867-0662. G	
Garage , west of Doty, Hawthorne, \$7.50 mo. 213-672-1716. G	
Rentals Wanted	For Sale or Trade
Apt or Duplex , 1-bdrm., unfurn., cpts., dps., Hawthorne-Inglewood area, have small son & cat, will pay up to \$120 mo., needed March 1. 213-532-8342. H	Air Conditioner , Amana, 9,000 b.t.u., room-type, \$80 or trade for small upright or chest freezer. 213-426-4060. M
House , 2 or 3 bdrm., mature adults, unfurn., fenced yard, within 10-15 min. of Northrop, not over \$175 mo. 213-968-2431. H	Chevelle , 1964 S.S. sport cpe., auto. trans., console, wire whl. covers, \$1,200 or trade for Corvair. 213-837-2942. M
Child Care	Outboard Motor
Child Care Offered, my home, hot lunch, yard, near Arbor Vitae, Aviation & Century Blvd. 213-672-7174. I	Outboard Motor , 3½ h.p., \$50 or trade for small portable TV. 213-425-7938. M
Personals	Rides and Riders
Thanks to all our good friends at Northrop for the kind words of sympathy upon the death of our wife & mother, Eleanor L. Metzger. GEO. METZGER & FAMILY. L	Rides Wanted 7:30 a.m. — 4:12 p.m. Springdale & Warner , Huntington Beach. F. L. Fowler, Aircraft ext. 4581, 714-846-0088.
My family & I wish to express our deepest appreciation to all our friends at Northrop for the kind & thoughtful expressions shown since my hospitalization. RALPH DAVIS & FAMILY. L	8 a.m. — 4:45 p.m. Near Imperial & Lakewood Blvd. , Downey. Morris Brown, Aircraft ext. 4487, 213-861-8508.
	Rides Offered 7:30 a.m. — 4:12 p.m. Springdale & Warner , Huntington Beach. F. L. Fowler, Aircraft ext. 4581, 714-846-0088.

NORTHROP NEWS

Vol. 28

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PLANNING NEW NAA CHAPTER
Dan Cashier, Chuck Taylor, Dick Davis and NAA Regional Director J. M. Terry.

Group Forms New Chapter Of National Accountants

Thirteen Northrop men, including nine from the Ventura Division, are participating in the formation of a new chapter of the National Association of Accountants.

The charter members-to-be have already attended a preliminary meeting with representatives from the sponsoring San Fernando Valley Chapter of the N.A.A.

The next meeting is scheduled for the evening of March 24 at Howard Johnson's in Thousand Oaks and Charter Night for the new Conejo Valley Area Chapter will be April 27.

Of the 50 who attended the first meeting, nine represented the Ventura Division. They were Dick Davis, Eldie Lorentson, Chuck Taylor, Bill Lang, John Hart, Denny Sherwin, Don Lally, Jim Karas and Bob Feakins.

Dan Cashier, a former Ventura employee now with the Corporate office, is a past-president of the San Fernando Valley Chapter and will be in the new group.

Bruce Kaller and Art Sobel, as-

signed to Ventura from Corporate Internal Audit staff, are also planning to be charter members along with Bill Young of the Northrop Corporate Laboratories.

The National Association of Accountants is composed of men from industry, government, and private business who work in the field of finance. Monthly programs deal with specific interests of the field.

Further information may be obtained by calling Mr. Davis at ext. 372, or Mr. Lorentson, ext. 391.

PROFESSORS

Three Ventura men are on the evening teaching staff at Moorpark College.

Dick Schwend is teaching Plastics Technology. Al Martin is in charge of a Quality Control class, and Frank Lund, is instructing "Elements of Supervision" in the Industrial Relations field.

Further information on these and other evening classes may be obtained by calling Al Robinson in Training, ext. 1180.

MAGIC KINGDOM CLUB CARDS OFFER SPECIAL DISCOUNTS AT DISNEYLAND

Planning a trip to Disneyland ahead of the summer throngs?

If so, then Ventura Division personnel should check in with the Recreation Club office first and pick up their Magic Kingdom Club membership cards for special dis-

counts.

For example, an \$11 adult ticket book is only \$4.50 with the free card. The junior book, a \$10.35 value, is just \$4 and a \$7.60 child's book is only \$3.50.

Kathy Miller, Ventura Rec Club secretary, also has discount cards for Knott's Berry Farm, Sea World, Marineland, San Diego Zoo, Movieland Wax Museum and the Japanese Village and Park.

Admission to any Pacific Drive-in Theater, normally \$1.75 is just \$1 if tickets are purchased in advance from the Club office in Room E-112. Hours are 11 a.m. to 1 p.m. daily.

RAIO ELECTED JA PRESIDENT

Rick Raio, son of Conejo Valley Chamber of Commerce President Fred Raio, has been elected second term president of the Northrop-counseled Junior Achievement company Conico.

Outgoing president is Rick Massey, son of Ventura Division artist Rachel Massey. He and all of the other new officers attend Thousand Oaks High School.

Elected vice president-Manufacturing, was Rick Smith. The vice president-Sales will be Vicki Rice. Kerry Gee is the new treasurer and Nancy James was chosen secretary.

MANY HONORS

Fred Boynton's Daughter Leads

When Fred Boynton attended graduation exercises at Canoga Park High School last week he and Mrs. Boynton were probably the proudest parents there.

Their daughter, Bonnie, was the valedictorian.

Miss Boynton carried a straight-A average through high school and her selection as valedictorian capped a varied and successful three years.

The blue-eyed brunette was elected "most likely to succeed," "best scholar" and "most popular" by her classmates.

She was named to the select Ephebian Society on the basis of academic record, service to the school community and good citi-

zenship. A cheerleader, she was one of 11 "seal bearers" at graduation.

Awards at graduation included the Mendenhall Trophy presented by the Valley News and Green Sheet to the student with superior scholarship, a \$100 youth service award from the Woodland Hills Rotary Club and honors from a B'nai Brith-sponsored essay contest.

Miss Boynton, who was also president of the Girls League, is an alumnus of the Wendy Ward

Models program operated by Montgomery Ward and has a part-time sales job in the department store.

Her educational career is continuing at Pierce College, a two-year institution in Woodland Hills. "She was turned down at UCLA," her father explained. "They're overcrowded and aren't accepting anyone now."

Mr. Boynton, a process cameraman in the Graphics branch at Ventura, has another daughter who is married.



Miss Boynton

Vincent, Peterson, Avery Deadlock In Regulation Play; Decimals Decide

A three-way tie for first had to be broken by handicap computing to two decimal places before prizes could be awarded to Flight A players in the Ventura Division Golf Club's tournament at Elkins Ranch in Fillmore.

Lou Vincent, Gary Peterson and George Avery all came in with net 68's. When the figuring was finished, though, Mr. Vincent won with 68.16. Mr. Peterson followed with 68.27 and Mr. Avery was third at 68.40.

Pat Cloward won Flight B with a 67, Al Hahn had 68 for second and Ross Ketchum's 72 was enough for third.

Wayne Merritt had the best score of the day, a net 66, to win the C Flight. Bob Forbes shot 72 for second and Dutch Youngers had a 73 for third.

Winning the Ladies Flight was Julie Williamson with a 74. Barbara Forbes was next with 87 and Yvonne Aitken had 104 for third.

Closest-to-the-pin honors on par three holes went to Mr. Hahn, John Peterson and Ernie

Jarvis. Gary Peterson had the longest drive of the day.

The golfers play the Buena Ventura course of the Ventura Golf Club in Ventura on Feb. 28 for their next tournament.

SCHEDULES SET FOR GOLF PLAY

It's going to be a busy and varied year for Ventura Division Golf Club members. The schedule calls for monthly tournaments through December in four Southern California counties.

Tournament dates and courses:

Feb. 28 — Buena Ventura Course, Ventura Golf Club, Ventura.

March 21—Green Tree Golf Club, Victorville.

April 18 — Santa Barbara Community Golf Course, Santa Barbara.

May 23—Elkins Ranch Golf Course, Fillmore.

June 27 — Valencia Golf Course, Valencia (near Newhall).

July 18—Santa Barbara Community Golf Course.

Aug. 16—Ojai Valley Inn and Golf Club, Ojai.

Sept. 26-27—Circle R Golf Club, Escondido.

Oct. 10—Ojai Valley Inn and Golf Club.

Nov. 27 — Valencia Golf Course.

Dec. 28 — Soule Park Golf Course, Ojai.

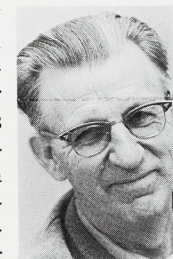
"This is a club strictly for weekend golfers," explained Commissioner Lou Gabriel. He urged all Ventura Division personnel interested in participating to contact their area boosters.

Area boosters are John Schaeffer, Engineering, ext. 635; Fred Longo, Administration Bldg., ext. 393; and Bob Jones, Manufacturing, ext. 1448.

Charlie Whitney To Take It Easy In Retirement

When Charles R. Whitney was asked how he was going to spend his time when he retired, the answer was simple. "Relax, travel some and just putter around."

Mr. Whitney put the lid on an 18-year Northrop career earlier this month. His experience as a punch press operator and later a carpenter found him working all over the Ventura Division facility.



Mr. Whitney

"We built cabinets, walls, hung doors, just about everything," Mr. Whitney recalls. He enjoys working with his hands at home, too, and is an avid fisherman.

Born 65 years ago near Tecumseh, Neb., Mr. Whitney moved west as a youngster and graduated from Burbank High School. He has lived in Van Nuys the past 23 years.

Mr. Whitney looks forward to moving into a mobile home and seeing the country with his wife of 40 years, Nina.

He feels his life has been very rewarding. And now he'll have that chance to enjoy it even more.

SUGGESTERS

(Continued from page 1)

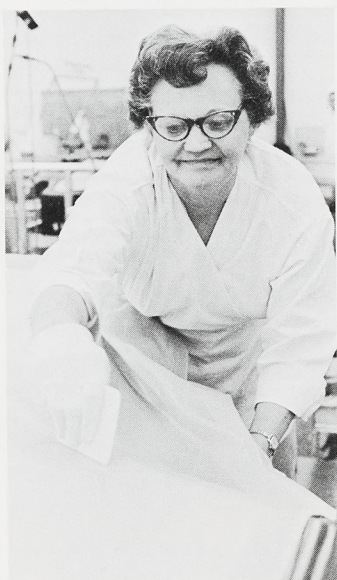
Stu Hudson and Red Adams of 747 Final Inspection received \$60 apiece for their joint suggestion of using a tub filing system versus cabinet filing.

Ken Mah received \$49 for suggesting a new materials rack, Dean Holman got \$33 for a cost-cutting idea and Russell Thomas eliminated unnecessary paperwork and was awarded \$31.

Also receiving cash awards for their ideas were Mario Silos, \$26, Bert Molina, \$18, and Ted Hildebrand and Charles Brune, \$10 apiece for separate suggestions.

**IS IT NEWS?
CALL EXT. 1425
VENTURA**

On The Job



JUANITA McCARTNEY is a laminator in the layup section of the Boeing 747 plastics fabrication unit. A two-year Ventura employee, Mrs. McCartney also worked on aircraft construction during World War II.

SUPER SAFETY SLEUTH SAM



NORTHROP NEWS

VENTURA DIVISION EDITION

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Vol. 28, No. 4

March 4, 1970

Rec Club Re-Installs Nearly All Officers

Dorothy Prychoda, Ventura Division Recreation Club president, and three other 1970 officers were reinstalled to head the Rec Club for another year during ceremonies at the Westlake Inn.

Mrs. Prychoda, of Direct Budgets, was re-elected along with Betty Reinisch, secretary, Tony Piscuskas, treasurer and past-president Zack Silvers, advisor. Wade Tilley succeeds Earl

Muehlenbach as vice president and Bob Calhoon replaces Dick Kipp as sergeant-at-arms.

Forty-seven attended the dinner and heard master of ceremonies John Lawrence recount highlights of the previous year before introducing the officers.

Those 1969 highlights included a luau, trip to Las Vegas, Children's Christmas Party, and busloads of sports fans attending professional football, baseball, hockey and basketball games.

Mrs. Prychoda said the 1970 list of activities will probably equal the 1969 recreational events.

Included for 1970 are a company-wide summer picnic, baseball games, football games and a family fishing jaunt aboard an offshore barge. Numerous other activities take place through Rec Club-sponsored clubs.

Northrop-wide events in which Ventura personnel can also participate this year are:

March 7, 5 p.m., "Hello Dolly" theater party at Grauman's Chinese Theater in Hollywood; May 3, 5 p.m., Northrop Night at the Ice Capades, Los Angeles Sports Arena; May 23, Northrop Night at Disneyland; Aug. 2, 6:30 p.m., special performance of the Ringling Brothers, Barnum and Bailey Circus.

Also, Sept. 19, Ice Follies at The Forum; Oct. 3-4, a Hearst Castle (San Simeon) Tour; other

(See REC CLUB, page 6)

NAMFI Proposal Would Cut Cost, Improve Mission

A Ventura Division proposal for operating the NATO Missile Firing Installation (NAMFI) would reduce present mission costs while elevating the realism and flexibility of training.

NATO's installation on the island of Crete in the Mediterranean Sea is used by member nations for ground-to-air missile training. Hawk missile batteries fire on remotely-controlled target drones which simulate enemy aircraft.

Ventura's proposal would utilize the Chukar drone which has been designated the MQM-74A by the U.S. Navy. A main feature of the proposal calls for insertion of a device in the Hawk electrical system which would delay the missile's explosion until it has passed the drone.

While the slightly modified Hawk reduces the possibility of target destruction it also represents a major modification in the total training program.

NAMFI presently uses drones only to tow targets. In the existing program, the actual target is a small, metallic object towed on a line about 1,200 yards behind the drone. This method confuses radar tracking because of two objects on the screen.

The Northrop proposal eliminates

(See NAMFI, page 6)

Flannigan Appoints Theo Knacke to Space Systems Marketing Position

T. W. (Theo) Knacke, a key figure in deceleration systems since 1935, has been appointed Space Systems representative in the Ventura Division Marketing department.



Mr. Knacke

Mr. Knacke succeeds William H. Freeman who has retired. The appointment was made by Tom Flannigan, Division vice president and manager of the Marketing department.

For Mr. Knacke the move transfers him from the design operations of the Engineering department to the Marketing field. He will identify and pursue new business in deceleration systems. Mr. Knacke came to the Ven-

tura Division in 1962 from the firm of Space Recovery Systems, Inc., where he was vice president and chief engineer.

His work as a technical consultant on research, development systems engineering and testing deceleration system programs has covered the Mercury, Gemini and Apollo programs.

He also has been involved in development of planetary landing systems, satellite and missile recovery systems, air retrieval systems and advanced landing systems.

Mr. Knacke, who holds several basic patents, is a past national chairman of the Aerodynamic Deceleration Systems Committee of the AIAA.

A native of Germany, he received his B.S. and M.S. degrees from the Institute of Technology, Stuttgart.



GROUND BROKEN FOR TEST FACILITY

From left, Wes Steyer, Clyde Corder, John Flores, Dick Shewmaker and Jim Rummell.

Ground Is Broken for Water-Filled Acoustic Test Facility Near Fort

Ground has been officially broken for a water-filled Acoustic Test Facility to be constructed at the Fort Conejo facility of the Ventura Division.

The large oval-shaped swimming pool-like structure is be-

ing built to measure acoustic sensitivity, beam patterns and sonar frequency response for the Mark 30 Mobile Anti-Submarine Warfare Target and similar underwater systems.

Participating in the ground breaking were W.A. Steyer, program manager, Marine Systems; Clyde Corder, representing Clark DeSpain, director, Facilities and Property; John Flores, chief engineer and acting manager, Engineering department; Dick Shewmaker of the Engineering Test and Product Support group; and Jim Rummell, acoustics project engineer, of the Underwater Systems office.

A construction contract has been awarded to Allied Construction and Engineering of Ventura to build the gunite-lined facility. The tank will be 30 feet deep, 50 feet long and 30 feet wide at its maximum points.

It will contain 270,000 gallons of water which also will be a standby water supply for emergency fire control.

A steel equipment building will house pumping and electrical test equipment. Construction completion is scheduled for Aug. 1.

The second phase of the development, planned for next year, will include housing the entire tank facility.

APOLLO TV SHOW

"Apollo Is A Californian" will be the subject of the television program "Interface" on educational Channel 28 at 8:30 p.m. Tuesday, March 10, and 8 p.m. Friday, March 13.

The program will feature films of Project Apollo highlights including re-entry and splashdown with the Ventura Division-produced Apollo Earth Landing System.

Page will compare the available system approaches and will provide guidance to the networks for present and future planning.

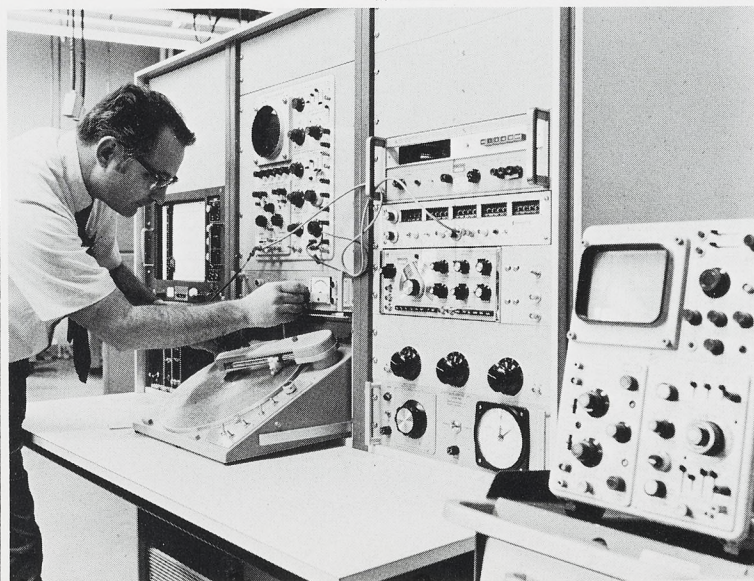
Considered as prime methods of program distribution will be terrestrial microwave and orbiting satellite repeaters. Page will define existing systems and recommend alternatives for network distribution at reduced costs, but with the same high reliability, flexibility and quality of service now being provided.

Northrop Page was selected for the study following a series of presentations from major consulting firms.

(See photo, Page 2)

Since its formation in 1947, Northrop Page has gained wide experience in the design, construction and operation of both terrestrial and satellite systems. The Northrop subsidiary is a world leader in design, engineering and construction of satellite communications earth stations.

Northrop Page also recently conducted a study for the President's Task Force on Communication Policy to evaluate new communication technologies and their application which will have a direct influence on the expansion of worldwide communications.



FOR ACOUSTIC TESTING

Les Myers adjusts equipment to be used with new facility.

Signing Network Pact



MAJOR NETWORK representatives are shown finalizing contract with Northrop Page Communications Engineers for a new TV and radio feasibility study for a network program distribution system. They are from left, William Lodge, CBS vice president, Edward J. Roth, Corporation for Public Broadcasting, John B. Gardella, Northrop Page vice president, Julius Barnathan, ABC vice president, and George H. Fuchs, NBC vice president. Story on page 1.

NORTHROP NEWSMAKERS

Beverly Kovacevich, Ventura, has been elected secretary of the Ventura County Humane Society.

Richard Carlson, Ventura, is a candidate for the board of directors of the Las Virgenes Municipal Water District which serves the Calabasas - Agoura - Malibu Canyon area of western Los Angeles County.

Dr. K. C. Wu, Aircraft Division, has authored a paper on "Multi-pass Welding of Titanium 8A1-1Mo-1V and Titanium 6A1-4V" for presentation next month at the American Welding Society's 51st annual meeting and possible publication in the Welding Journal.

Joseph T. Gallagher, Aircraft Division, has written a paper titled "Requirements on Simulators Used in Handling Qualities Research" for presentation this

month at an AIAA meeting on Visual and Motion Simulation Technology and publication in the AIAA Journal of Aircraft.

H. B. Howell and **D. L. Stansbarger**, Aircraft Division, are co-authors of a paper titled "In-Plane Shear Properties of Advanced Composite Material Utilizing the 'Rail Shear' Test Method" for presentation at an AIAA meeting next month in Denver and publication in the Journal of Composite Materials.

Dr. Walter A. Martin, formerly of the Aircraft Division, has been assigned as Corporate representative at Northrop's Central Regional office, Dayton, Ohio. Dr. Martin replaces O.A. Levi who is being re-assigned to the Aircraft Division and reports to L.C. Breckenridge, manager, Central Regional office.

Investors' Magazine Notes Northrop Growth

The future of the Northrop Corporation is considered excellent, according to the monthly magazine "Better Investing."

Northrop, says the article, stands out among other aerospace companies because of its diversification and "a strong trend in the percentage of non-defense business."

It states, "Northrop's communications and electronics business is growing rapidly and promises to further reduce the corporation's dependence on military business."

The article refers to an investment survey firm's evaluation that "the company is a superior holding for the next three to five years."

Citing Northrop's "good growth trend," the article outlines the recent stock history and concludes that Northrop stock could be considered "undervalued"—or ultimately worth much more than its current price.

WESTEC MEET SET THIS MONTH

Many Northrop members of the American Society for Metals and the Society of Manufacturing Engineers will be in attendance at the annual Western Metal and Tool Exposition and Conference (WESTEC) this month.

The conference will be March 9-13 at the Great Western Exhibit Center and the Biltmore Hotel in Los Angeles. Attending will be an estimated 28,000 engineers and manufacturing executives. More than \$12 million in products from 450 companies will be on exhibit.

Keynote speaker at the opening WESTEC luncheon on March 9 will be Dr. William Duke, president of the Whittaker Corp., Los Angeles. He will discuss "Materials Systems Plus Manufacturing Techniques... Formula for Profitability in the 70's."



ENGINEERING PROJECT AWARD
W. A. Steyer, right, receives IAE honor from Alfred C. Ingersoll.

Apollo Contributions Earn Engineering Merit Award

Northrop Corporation has received an Engineering Merit Award from the Institute for the Advancement of Engineering at a dinner in Los Angeles marking National Engineers' Week (Feb. 22-28.)

Accepting the special certificate was W. A. (Wes) Steyer, Landing Systems program manager at the Ventura Division.

Mr. Steyer's Apollo Earth Landing System team was the recipient of one of three Engineering Project Achievement Awards. Other winners were North American Rockwell, Space Division,

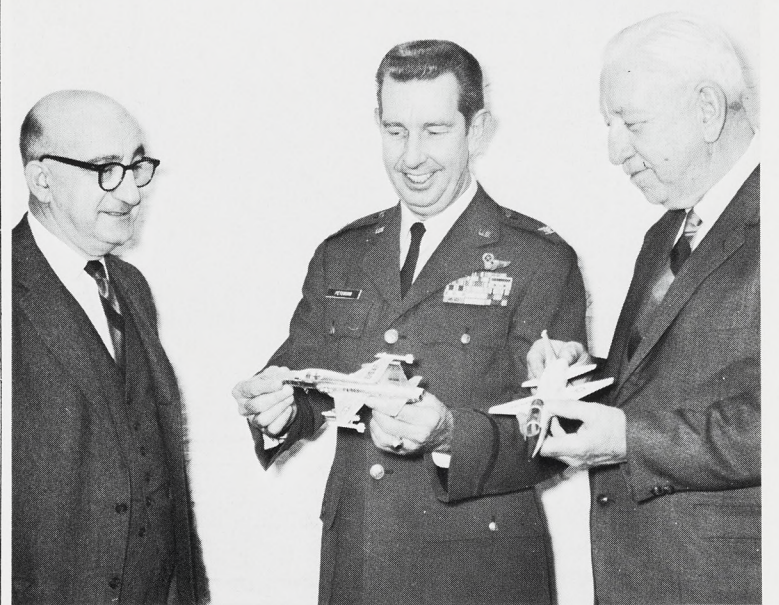
for the Apollo Project and Century City, Inc., for the development of Century City.

The awards were presented for "having brought to the operating stage projects which, because of their unique character, are worthy of special recognition."

AFRICA ANYONE?

The NRC Travel Club will meet at 7:30 p.m., March 20, in the NRC Clubhouse, to discuss the upcoming African tour, Aug. 18.

F-5/T-38 SPO — 'Senior' Office



A CELEBRATION marked start of new decade and fact the F-5/T-38 Special Program Office at the USAF Aeronautical Systems Division is "just about the oldest" organization of its type around. To mark occasion, signatures of SPO "graduates" were mounted on giant sheet and surrounded by appropriate pictures. Shown are from left, S. G. Steffens, assistant director who has been with office since 1957, Col. C. H. Peterson, SPO director and seventh man to fill this office, and William J. Janning, SPO production engineer who has been with the office since 1957. The current SPO group dates back to 1956.

GEORGE VAUGHN HEADS NEW SLATE OF NORTHROP RETIREMENT CLUB OFFICERS

George Vaughn, president, heads a new slate of officers installed recently by the Northrop Retirement Club.

Serving with him are: James Curran, vice president; Jeannette Kaupp, secretary-treasurer; and Ed Jacobs, sergeant-at-arms.

The club, composed of retired Northrop employees from every division, meets the third Wednesday of each month at the NRC Clubhouse, Hawthorne. The doors open at 10 a.m. Refreshments are served at noon and the

meeting begins at 1 p.m.

Many special tours and activities are staged by the group, including potluck dinners, participation in regular NRC group activities and trips tailored especially to the desires of the members.

**IS IT NEWS?
CALL EXT. 4273
HAWTHORNE**

747: What A Difference A Year Makes

There is a marked contrast in the months of February 1969 and 1970 as related to activities on the Boeing 747 jetliner program.

On Feb. 9, 1969, the maiden flight of the Boeing 747 occurred.

One year later, February 1970, the scene looks something like this:

More than 45 Boeing 747s have rolled off the assembly line

at Renton, Wash. Nineteen 747s have made one or more flights. More than 10 aircraft have been delivered. And commercial service is under way both domestically and internationally employing the Boeing 747.

Markings seen about The Boeing Company's 747 flight line show such names as Pan Am, Trans World Airlines, Air France, Deutsche Lufthansa,

Northwest Orient, Alitalia, Japan Air Lines, Continental and British Overseas Airways Corporation.

Northrop's Aircraft Division is now turning out components to comprise one shipset of 747 assemblies every three days. And this week the 70th shipset of components was divided between assemblies already on hand at Boeing or en route.



TWA BOEING 747 TAKES OFF FROM LOS ANGELES ON INITIAL DOMESTIC FLIGHT.

Northrop's 'Glassical' Artists

The Electro-Mechanical Division employs opticians who work with glass, but there the resemblance to opticians ends. These men are "aerospace opticians" who work in a spotless laboratory and to within tolerances measured in millions of an inch.

Northrop's opticians, members of the Optical Development unit, build and test optical components which are expected to perform demanding missions in extreme environments.

Example: The Northrop-built telescope in the Airborne Lightweight Optical Tracking System (ALOTS), the largest airborne telescope in the world. Mounted in a special pod on a KC-135 jet aircraft, the telescope can resolve a 12-foot object at a distance of 200 miles. It is used for photographing space vehicle launches and re-entries.

The optical work which goes into such items is critically precise. An error of a few millionths of an inch in an optical component can mean the difference between success and failure. Yet, optical expertise is a creative and therefore personal skill.

"Our people strive for perfection. If the first unit doesn't work forget about the rest. However, there is no button to push on a machine for this kind of performance. Within the rules and techniques of the state-of-the-art, the individual makes all the difference."

Paul Halderman, manager of the Optical Development unit, made this comment about the members of his team, optical designers, engineers and master development opticians.

"Components such as lenses and mirrors are completely designed on paper, even to the extent of tolerances before fabrication begins. This design work is done by means of ray-tracing on a high speed, digital computer us-

ing the most advanced optimization and analysis techniques.

"Paper design yields a prescription and a tolerance; we then determine the quality of raw material to be used and test it prior to fabrication of the actual component," said Mr. Halderman. "Over the years we have dealt with such materials as sapphire, synthetic quartz, rock salt, calcium fluoride and lithium fluoride. Some of these optical materials are quite expensive in their raw form... and can cost anywhere from \$150 to \$300 per pound."

Raw materials are processed to correct size and shape on generators, milling type machines with diamond impregnated abrasives. This may involve sizing components with diameters from 30 inches to less than an inch.

Fine grind operations follow using progressively finer abrasives until the work is actually being semi-polished rather than ground.

The fine grind and polishing operation is the most demanding in the fabrication of an optical component. Optical contours are often asymmetrical; the opticians must insure that such complicated contours are ground to exacting tolerances before polishing to fractions of a wave length of light.

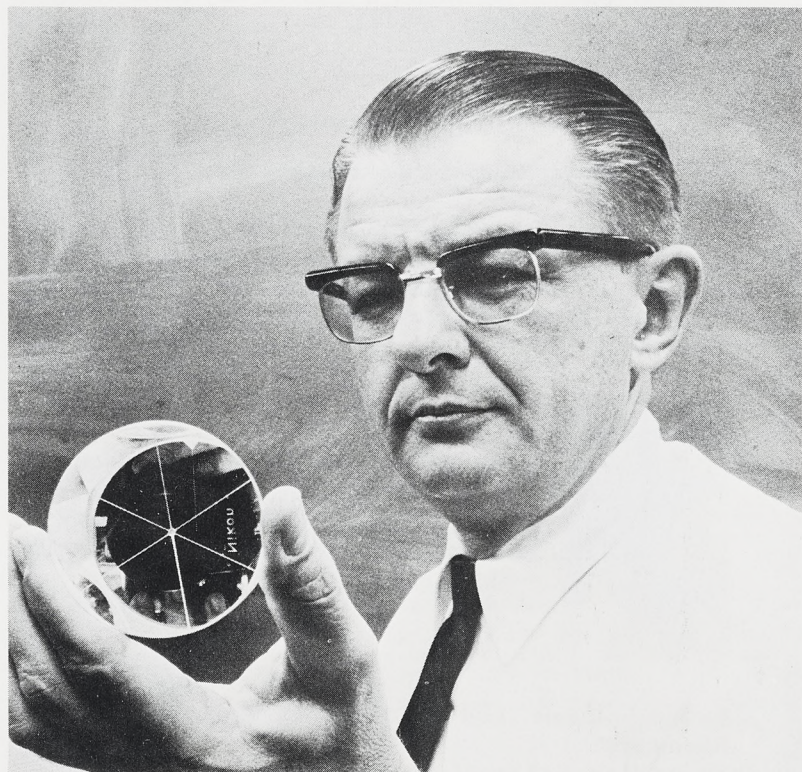
His basic tool, the polisher, reacts to temperature and humidity; thus, it must be continually adjusted according to the optician's professional knowledge and know-how in order to form the correct contour.

Besides ALOTS, the Optical Development unit has worked on the Snark astro-inertial guidance system; a Schlieren wind tunnel device which observes density change in air streams (installed in the Aircraft Division wind tunnel); gunsight of the F-5; and zoom lenses and simulator systems.



THE TOUCH OF PERFECTION

The concentration of a craftsman is shown in this reflection of Tom Griffith from a 22-inch diameter test mirror in the Meteorology Laboratory.



DIRECT REFLECTION

Paul Halderman displays piece of automatic reflecting glass similar to that used in returning laser beam from moon's surface. Note camera reflection in glass.



PRECISION ADJUSTMENT

Hans Winkler, master development optician, positions piece of raw glass on generator which cuts glass to desired contour with diamond grinding wheel.

SPINNING WHEEL LAMPS

This Woodworker Uses Classic Pattern

The lamps that Ralph Othick makes are new, but the design is more than 150 years old. They are replicas of the spinning wheel his wife's great grandmother used before 1850.

Spinning wheel lamps are but one of the beautiful examples of maple woodwork that comes from Mr. Othick's lathe. He makes "just about everything that can be made of wood." One of his more unusual pieces is a table

made by cutting an oak barrel in half and mounting it on ball legs. It was completed with a two-inch top and a maple finish.

Occasionally he can be talked into doing a special job. A recent one was to turn some wooden trim a friend needed to restore an antique clock.

His preference, however, is making spinning wheel lamps. This work started as a hobby before World War II, but after he

came to Northrop in 1953 he began selling them, because, as he says, "You can only use so many lamps yourself and I didn't want to stop making them."

Mr. Othick first became interested in woodworking when he worked in the only sawmill in Southern California. The mill, located in San Diego, finished timber floated by log raft from Oregon.

After working with a large variety of furniture designs, he turned to spinning wheel lamps when his father-in-law brought back several family heirlooms from Pennsylvania. They were in bad disrepair and Mr. Othick was asked to repair them.

Easy Transition

He liked the work and decided that if he could repair spinning wheels, he could build them. Using a wheel handed down by his wife's great-grandmother as a pattern, he builds half-scale models for tables and full-scale models for floor lamps.

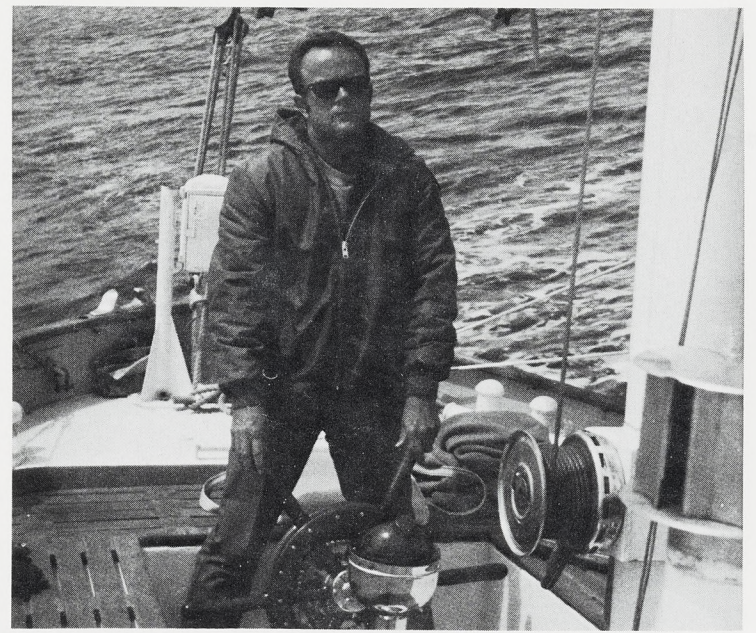
The spinning wheels are exact in detail and need only a metal shuttle to make them capable of spinning. He doesn't go to the trouble and extra expense of adding the shuttle because, as he says, "today's women had rather buy their thread at the corner store."

Mr. Othick is a truck driver with the Aircraft Division Transportation section.

LAS VEGAS TOUR

Northrop Recreation Club is accepting reservations for an April 17-19 group tour to Las Vegas.

Round trip bus transportation, two nights at the Hacienda Hotel, plus a package of special events activities is included in the \$39.50 per person tab. A \$15 deposit is required to hold reservations.



AT THE HELM

Dick Flude guides sailing vessel over Pacific waters.

He Sails 'Round The World', Fulfills a Lifelong Dream

As a young boy Dick Flude used to walk along the sandy shores of Redondo Beach, look out at the horizon, and dream about the day he would set sail to the far-flung corners of the earth.

That was 25 years ago.

Today, Mr. Flude is in Acapulco, Mexico, the second stop on a voyage which will fulfill his boyhood ambition — to sail around the world.

An engineer in the Electronics Division's Computer Test section, Mr. Flude is currently on leave of absence. He estimates that the journey will last anywhere from two to three years, depending on how long they remain at each port.

He is making the trip—along with three other men—aboard the Kwan Yin, a 56-foot ketch owned by Phil Akin of the Northrop Corporate Laboratories. Mr. Akin is also on leave of absence.

The crew of the Kwan Yin, which set sail last December from King Harbor in Redondo

Beach, are all experienced sailors.

Mr. Flude has been sailing regularly for the past 10 years. In 1967, he skippered a 32-foot sloop to victory in the first Aerospace Trophy race. Mr. Akin previously piloted the Kwan Yin much of the distance between Boston and Los Angeles.

In a letter to friends in Hawthorne, Mr. Flude said the boat will sail south from Acapulco this month to the Galapagos Islands, which are located on the equator.

Other places the Kwan Yin is scheduled to visit during her long voyage include the Panama Canal, Virgin Islands, South America, Europe, India, Australia, Hong Kong and Tahiti.

"Besides sailing to the usual places tourists go, we hope to stop off at some of the out of the way places," Mr. Flude said.

Mr. Flude, who will remain with the boat for 18 months, estimates his costs at \$1,000 which, he said, "isn't a bad price to pay for the dream of a lifetime."



MODERN CRAFTSMAN FOLLOWS ANCIENT DESIGN
Ralph Othick's maple spinning wheel lamps are things of beauty.



Falvey Helps Jr. Grid Team Get To Bowl Game at Salt Lake City

Jerry Falvey, financial analyst, Electro - Mechanical Division, helped escort 48 members of the Junior All-American Football teams taking part in the Junior Football League bowl game in Salt Lake City.

Mr. Falvey, who doubles as assistant athletic director for the Los Alamitos - Rossmoor Youth Athletic Association, helped raise \$4,500 in 10 days to charter a plane to take the boys—ages 8 to 13—to Salt Lake City.

"It was really a wonderful trip for the boys," Mr. Falvey said. "The games were played in a sea of mud, but the players loved it."

Among the stars of the game was Mr. Falvey's son, Jerry, 12, who made a 65-yard run and also

scored two of his team's three touchdowns.

Those making the trip were guests in the homes of opposing players. After the games they were taken rabbit hunting, to a hockey game and on a tour of Salt Lake City.

Last year the league was able to suit up 130 boys at an average cost of \$65 each. For the 1970 season they hope to expand to include four additional teams. The teams are drawn from Orange County.

Magic Kingdom Club Promises Easter Variety

All Northrop employees and their families are eligible for membership in Disneyland's Magic Kingdom Club. Membership cards may be obtained from the nearest Personnel Activities office.

And the club has indicated a preview of summer activities at Disneyland is available in special Easter vacation week activities March 22-29.

Highlight this period will be Country Music Jubilee, March 22; America '70 stage review, daily March 23-27; Freddie Martin and his Orchestra, nightly March 22-28; Sound Castle mod music, nightly March 22-28; plus performances during the week of the Clara Ward Singers, the Firehouse 5+2, Teddy Buckner, and the Kids of the Kingdom.

Disneyland's old fashioned Easter Parade is set for 3 p.m. March 29 rounding out the week's activities.

WE ASKED THEM—Would You Like to Have Phone-Vision in Your Home?



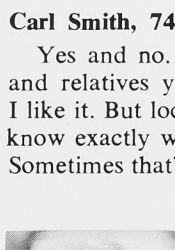
Betty Gregory, secretary, Electro-Mechanical:

I'm for it only in a business office, but not in the home. Unless it has a cut off button so callers can't see me in my early morning curlers.



Linda Smith, secretary, Electro-Mechanical:

No. I think it might be very embarrassing at times.



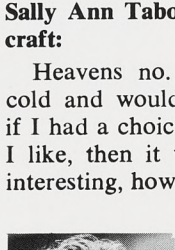
Carl Smith, 747 structural mechanic, Aircraft:

Yes and no. For out-of-state calls to friends and relatives you haven't seen for some time, I like it. But locally, no thanks. Everyone would know exactly where you were when you called. Sometimes that's not good.



Marie Bartz, target drone subassembly, Ventura:

I don't think I'd like it. Because sometimes when I answer the phone I may not look exactly the way I want to look. But I'm sure it's coming anyway. That's progress.



Sally Ann Tabor, administrative secretary, Aircraft:

Heavens no. For instance, today I have a cold and wouldn't care to see anyone. Maybe if I had a choice of seeing and being seen when I like, then it would be okay. The concept is interesting, however.



George Boren, project inspector, Ventura:

No, it will be a mixed blessing. There will always be occasions when you don't want to see the person you're talking to—sales or charity work, for example.



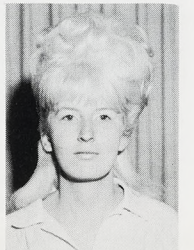
Brice Bates, Quality Control analyst, Electronics:

I feel it would be useful to enable a person to see who they're talking with. Voices are sometimes quite deceiving, sometimes causing hurt feelings because you don't recognize a friend's voice.



Rosemary Kuczer, lead key punch operator, Electronics:

I think it would be great, especially for long distance phone calls. It would also make people keep up their appearance in the home, too.



Classified

Classified ad service is provided free of charge to all Northrop personnel. Ads for agencies, commercial enterprises and private businesses are not accepted. The Northrop News reserves the right to edit or omit ads. Obtain ad form C67 from organization clerk and mail ad to Northrop News, 170, zone 62. Ads are limited to one item and one ad per person each issue. Deadline is noon Wednesday, one week before publication.

Automobiles For Sale

Austin Healey, 1969 Sprite, 4-spd., d/brakes, tach, soft top, \$1,800. 213-324-9076. A

Dodge Dart, 1964, 2-dr., 3-spd., r/h, auto., 225 cu. in., 6-cyl., \$695. 213-421-7029. A

Corvette, 1962, 327 cu. in., 340 h.p., r/h, \$300 & take over \$40 mo. pymts. or \$900. 213-372-6740. A

Volkswagen, 1969, many extras, \$1,850. 213-372-5694. A

Station Wagon, 1966 Datsun, \$750. 213-671-6484. A

Station Wagon, 4-dr., Chevrolet, 1957, 283 V-8 eng., auto. trans., r/h, \$325. 213-927-0678. A

Volkswagen, 1964 Squareback 1500 S, \$995. 213-377-4164. A

Volkswagen, 1967 fastback, new tires, \$1,800. 213-641-5584. A

Volvo, 1959, 544, \$400. 714-525-5388. A

T-Bird, 1966 twin Landau, air, tape, p/w, p/b, all power, extras, \$2,000. 213-630-4700. A

Volkswagen van, panelled, stereo, tape player, new eng. & trans., \$1,395. 213-862-3027. A

Mustang, 1967, 26,000 mi., 4 spkrs., \$1,395. 213-676-1235. A

Econoline Van, 1961, new radiator, bat. & tires, \$350. 805-252-5846. A

Chevrolet, 1958, 6-cyl., 3-spd. stick, o/drive, \$125. 213-327-6373. A

Dune Buggy, street legal, Dunerunner body, \$800. 213-542-4208. A

Volkswagen, 1962, \$600. 714-892-1401. A

Volkswagen, 1967, r/h, \$1,350. 213-476-5172. A

Corvair, 1963 Monza, 4-spd., \$375. 213-371-5325. A

Rambler, 1964 Classic 6, 4-dr., \$525. 213-833-5594. A

Morris Minor, 1954, 2-dr., 5,000 mi. on rebilt. eng., \$125. 213-327-0847. A

Pickup, 1965 Ford F100, V-8, w/camper hull, 3-spd. stick, \$950. 213-835-2016. A

Station Wagon, 1964 Buick Special Deluxe, fact. air, \$600. 213-375-2622. A

Ford, 1963 fastback Galaxie 500 XL, r/h, \$720. 213-377-9861. A

Buick, 1962 Wildcat, full power, 54,000 mi., \$600. 213-291-9394. A

Cadillac, 1954 convt., \$150. 213-663-6402. A

Pontiac, 1962 Tempest, r/h, \$425. 213-376-2122. A

Volkswagen, 1967, 30,000 mi., \$1,595. 213-869-6508. A

Oldsmobile, 1961 F-85, 2-dr. cpe., p/s, V-8, r/h, auto. trans., \$250. 213-326-0340. A

Station Wagon, 1964 Rambler, a/c, auto. trans., \$650. 805-495-9410. A

Mustang, 1969 fastback, console, 351 cu. in. eng., \$2,900. 213-823-7121. A

Cadillac, 1961, full power & air, new eng., \$450. 213-371-9824. A

T-Bird, 1955, 2 tops, \$875. 213-377-5055. A

Falcon, 1961 Futura, 6-cyl., r/h, \$235. 213-324-9904. A

TR-3, 1958, rebilt. front end, \$100. 213-372-5069. A

Station Wagon, 1964 Chevrolet Impala, V-8, stick shift, r/h, \$500. 213-675-7626. A

Pontiac, 1965 Le Mans, h/top, auto., radio, a/c, \$1,050. 213-379-5052. A

Corvette, 1961 h/top convt., 283 stick, mags, other extras, \$995. 714-838-8895. A

Porsche, 1967 912, AM-FM radio, \$4,400. 213-371-7097. A

Volvo, 1965 122 S, 4-dr., new paint, \$1,285. 213-379-4437. A

Ford, 1963 Galaxie 500 XL, p/w, p/b, p/s, a/c, \$575. 213-474-5682. A

Lincoln, 1961 Continental, 4-dr., all power, a/c, 68,000 mi., \$595. 213-377-2552. A

Volkswagen, 1965 Squareback, \$1,150. 213-676-4856. A

Mustang, 1968, V-8, auto. trans., radio, p/s, \$1,950. 714-827-0357. A

Falcon, 1961 Ranchero, 170 cu. in., 6-cyl., auto. trans., r/h, \$200. 213-835-0608. A

Chevrolet, 1960 Impala, \$495. 213-323-3675. A

Ford, F-250, h. d. susp., cruise-o-matic, extra tanks, insulated playway shell & boat rack, \$1,650. 213-676-3886. A

Station Wagon, 1965 Ford Country Squire, r/h, \$980. 213-835-0717. A

Mustang, 1965, V-8, posit., d/brakes, auto., h/top, a/c, \$1,250. 213-641-4118. A

Chevrolet, 1962 Impala, 2-dr., recent o/haul, \$500. 213-867-8873. A

Camper, Coach, new eng., \$600. 213-675-2159. A

Pickup, 1964 1/2-ton Chevrolet, w/camper, \$1,500. 213-370-1963. A

Station Wagon, 1962 Chevrolet, auto., \$75. Box 401. A

Ford, 1967 Cobra GT 500, \$2,000. 213-644-2211. A

Automobiles For Sale

Ford, 1969 XL GT convt., air, radio, p/s, d/brakes, 390 eng., \$2,900. 213-370-9943. A

Oldsmobile, 1965 Delta 88, \$925; Le Mans, 1968, \$1,395; Grand Prix, 1969, \$3,295 min. bids, Credit Union ext. 1117. A

MGB, 1967 G.T., wire whls., 31,000 mi., \$1,900. 714-644-2887, 213-329-2926. A

Chevrolet, 1957 2-dr. sedan, V-8 auto., \$300. 213-676-9330. A

MGA, 1958 convt., eng. recently o/hailed, \$800. 213-423-1363. A

Volkswagen, 1961, new tires, \$495. 213-830-6163. A

Dodge, 1966 Coronet, model 440, 2-dr. h/top, 29,000 mi., \$1,095. 213-756-9342. A

Dodge, 1964 Polara convt., new carb. & starter, \$795. 213-340-4472. A

Household Items For Sale

Chairs, 2, modern, armless, orange naugahyde, \$35. 213-377-1075. B

Stove, O'Keefe & Merritt, 36", gas, avocado, \$100. 213-325-8342. B

Washer, Kenmore & dryer, Whirlpool, \$50. 213-676-3589. B

Rocker, Early American, upholstered, recliner-type, red-brown tweed, \$35. 213-541-1568. B

Bedsprad, custom-made, king size, deep quilting, champagne, \$25. 213-326-8455. B

Bed, dble., posture rest, mattress, box spring, frame & bookcase h/board, \$35. 213-863-7547. B

Washing Machine, \$25. 213-644-2668. B

Occasional Chair, blue, mod., \$25. 213-325-3237. B

Dinette Set, table, 4 chairs, \$20. 213-534-3021. B

Recliner Chair, green vinyl, \$35. 213-678-2306. B

Washer, G.E. auto., \$35. 213-329-9484. B

Desk, maple, \$50. 213-672-7227. B

Kitchen Sink, white, dble., deep, \$10. 213-328-3306. B

Dresser Set, 3-pc., other items, \$50. 213-672-1491. B

Porta Crib, mattress & sheets, \$12.50. 213-755-8917. B

Dining Room Set, French Provincial, dropleaf table, 4 chairs, custom pads, fruitwood, 2 extra leaves, \$125. 213-833-9257. B

Couch, 6', \$10. 213-371-4233. B

Washer, RCA Whirlpool, 1 yr. old, \$100. Box 402. B

Coffee Table, dark Mediterranean style, Nev-er-mar top, \$25. 213-379-9202. B

Sectional Divan, 4-pc., \$65. 213-776-4845. B

Table, 6 chairs, 2 extra leaves, \$40. 213-379-2243. B

Bedsprad, dual, quilted, gold, \$30. 213-372-0067. B

Miscellaneous For Sale

Skis, Head, 200 cc, Marker bindings, \$155. 213-433-3877. C

Pool Table, 8', cues, balls, rack, \$95. 213-379-1873. C

Motorcycle, Honda 150, slightly disassembled, \$75. 213-325-3452. C

House, 3-bdrm., 2-car gar., f/place, bltins, dps., assume 5 1/2% loan, will carry 2nd, \$23,000. 213-327-5159. C

TV, 21" Packard Bell, color, \$100. 213-679-9335. C

Boat, Glen-L inbd., 18'2" V-bottom, 327 Chev., trailer, \$3,250. 213-378-4959. C

Bass Amplifier, Guild piggyback & Fender precision bass guitar, \$325 or sell sep. 213-882-0761. C

Guitar, amplifier, Epiphone, \$200. 213-374-2127. C

Gun, Ruger convt., never used, 2 holsters & belts, 600 rnds. ammo & cleaning kit, \$80. 213-753-6277. C

Lot, in Calif. City, \$2,200. 213-379-0375. C

Desk, oak, pedestal, 32"x60" l.h. typewriter well, 4-drwr. glass top, \$45. 213-861-6404. C

Motorcycle, 1969 Yamaha DT-1B, \$625. 714-633-1037. C

Relaxacizor, 4-dial model, \$75. 213-328-6662. C

Exercycle, \$5. 213-325-3675. C

Pool Table, lge., walnut, \$150. 213-324-2021. C

House, 3-bdrm., 2 baths, new paint & cpts., bltins, covered patio, 5 yrs. old, \$29,500. 213-835-5052. C

Wheels, 4 14" deep-dish, reversed, chromed, for big GM cars, \$50. 213-323-4257. C

Rims, 4 1963 Chevy 14", hub caps, \$15. 213-324-5449. C

Mini Bike, Powell Keystone, w/Honda 170 cc eng., \$150. 213-675-4505. C

Power Mower, Briggs & Stratton motor, \$25. 213-670-1787. C

Lot, 3-acre bldg. site, between Woodland Hills & Westlake Village, horses o.k., utilities in, low dn., \$28,500. 213-783-8271. C

Outboard Motor, Mercury 6 h.p., used 15 hrs., \$125. 714-893-3292. C

Lot, 80' x 120' R-1, Calif. City, \$1,430 approx. bal., \$550 & take over \$29 mo. pymts., \$1,980. 213-379-8904. C

Mobile Home, 1967 Budger Expando, 15'x30' unfurn., 1-bdrm., many extras, in adult park, Hawthorne, \$5,300. 213-644-2401. C

Mags, 4 Ansen Sprint, 14" Ford, or Chrysler, \$125. 714-893-3292. C

Lots, 6 lge., in Palmdale, 55' x 190', \$3,000. lot. 805-252-6521. C

Motorcycle, 1968 Honda, 175 cc Scrambler, 3,000 mi., \$425. 213-679-4723. C

Miscellaneous For Sale

Motorcycle, 1967 Persang Bultaco, 250, \$500. 213-676-9735. C

Block & heads, 1957 392 Hemi, 90% complete, chrome, never raced, \$450. 714-842-6020. C

Tape Recorder, portable Brentwood, \$45. 213-679-5195. C

Transmission, 4-spd., for 1949-'55 Chev. pickup truck, low first gear, \$75. 213-323-6786. C

Stereo, Barclay walnut cabinet, 2-30 W. amp., AM-FM tuner, pre amp. & changer w/university spkrs., \$295. 213-867-8739. C

Cat, male bluepoint Siamese, approx. 6 mos. old, \$20. 714-828-0837. C

Stroller, infant's Strollee & Royal-Line travel bed w/rockers, \$25. 213-823-5225. C

Boat, Sears, 12' alum. w/oars & 3 h.p. motor, \$200. 213-830-2792. C

Photo Enlarger, DeJur Ansco, Federal w/easel, \$55. 213-672-2370. C

Outboard Motor, 1967 Evinrude, 9 1/2 h.p., fuel tank, 2 props, less than 15 hrs., \$200. 213-371-8921. C

Motorcycle, 1967 Yamaha, 2-cyl., 100 cc, extras, \$295. 213-371-7161. C

House, 3-bdrm., 1 1/4 bath, bltins, cpts., dps., dble. gar., blk. fence, in Cerritos, 10 min. from Northrop Anaheim, \$27,500. 714-860-3516. C

Belt Massager, 2-spds., used approx. 15 times, \$35. 213-679-5677. C

Trailer Hitch & frame fittings for TR-4/4A, \$18. 805-495-7550. C

Piano, rebilt., grey vinyl covered mirror shelf, \$225. 213-375-5385. C

Horse, pinto mare, 6 yrs. old, 15.3 hands, \$225. 714-398-2680. C

Filters, set of 10 Du Pont V.C., for varilour paper, \$10. 213-835-3869. C

Lamphouse, for Omega D-2 enlarger, Omega-lite, \$40. 714-635-7975. C

Acreeage, 5 acres in Adelanto, utils., \$750 dn., \$8,250. 213-378-1026. C

Units, 6, 1/2 acre, income \$6,500 yr., \$59,000. 213-675-1776. C

Apt, 2-bdrm., 2 baths, all elec., dps., cpts., patio, pool, party rm., hobby shop, enc. 2-car gar., newly decorated, adults, can carry papers, \$24,000. 213-327-8047. C

Motorcycle, 1968 Honda 175, \$300. 213-865-0552. C

Bowling Ball, 16 lb., \$5. 213-376-4831. C

Motorcycle, 1967 Honda 305 Scrambler, \$425. 213-425-6543. C

Joiner, 4" w/motor & stand, \$35. 714-523-2495. C

Helm Seat for cabin cruiser w/all fittings, \$25. Box 403. C

Dinner Ring, 10 diamonds, \$400. 213-378-1876. C

Motorcycle, 1969 Honda SL 90 motor sport, 350 mi., \$325. 213-675-4344. C

Typewriter, Smith Corona, standard, \$50. Box 404. C

Tire Chains, for Porsche or VW, \$5 ea. pr. 714-547-0411. C

Tuner, FM, stereo amplifier, \$50. 213-379-3134. C

Typewriter, L.C. Smith, 10" std., non-elec., non-portable, \$25. 213-754-4820. C

Drill Motor, Craftsman, 1/4", w/screw driving attach., \$10. 213-545-6719. C

Transmission, auto. Powerglide for 1957-59 Chev., \$20. Box 405. C

Cyclo-Teacher, World Book, 6 subjects, to jr., high, pre-school sec. incl., \$35. 714-526-2962. C

Marine Equipment for Ford 292 eng., trans., other items, \$150. 213-371-3473. C

Baby Carriage, collapsible, convert to car bed, \$35. 213-370-3293. C

Wanted to Buy

Fishing Boat, 12' or 14' alum., with or w/out trailer. 714-545-2035. D

Trailer Hitch, load-equalizer, frame mounted, for Chrysler. 213-645-1489. D

Transmission, 3-spd. for 1955 or later Chevrolet. 213-675-0031. D

Stereo Receiver, 75 watt or more & pair of good spkrs. 213-772-1610. D

Car Trailer, 2-wheel, for carrying camping gear. 213-378-5494. D

Free (To Be Given Away)

Rabbits, will be 8 wks. old Easter week. 213-372-7320. F

Rentals Offered

House, 3-bdrm., in Gardena, dble. gar., patio, corner fenced lot, children & pets o.k., \$195 w/gardener, \$180 w/out. 213-831-1745. G

Cabin, Green Valley, sleeps 6, \$25 w/end, \$50 wk. 213-324-9769. G

House, 2-bdrm., den, 2 baths, 3 miles from Northrop, \$225 mo. 213-675-6895. G

Apt, 1-bdrm., all elec., furn., pool, patio, sub. parking, no children or animals, \$155 mo. 213-644-4235. G

Cabin, A-frame, Camp Angelus, 2 bdrm., sleeps 10, \$30 day, \$120 wk. 213-644-7111. G

Chalet, 3-bdrm., 2 baths, completely furn., sleeps 10, Lake Arrowhead, \$150 wk., \$75 w/end. 714-528-2303. G

Cabin, Moonridge, Big Bear Lake, 3-bdrm., 2 baths, f/place, completely furn., family only, \$150 wk., \$60 w/ends. 213-326-7232. G

Cabin, Big Bear Lake, \$30 w/end. 213-867-0662. G

House, 3-bdrm., unfurn., near Aircraft Division, \$190 mo. 714-772-2583. G



LEADING WRESTLER

George Dugan, former Northrop employee, in Bison uniform.

George Dugan Leading NDSU Wrestling Team

A former Aircraft Division employee is leading the North Dakota State University wrestling team to an undefeated season.

George Dugan, who worked in Tools Accountable, has posted a 6-1 record thus far in NDSU's quest for the North Central Conference championship. The team finished second last year, losing by one point to nationally-ranked University of Northern Iowa.

The 19-year-old sophomore comes to California every summer to visit with his sister, Sarann Kruse, a department clerk in the Machine Shop, and another sister, Darlene Baxter, Plant Three Reproduction.

Included in his six 118-pound class wins are Bison victories over Minnesota-Morris, University of Minnesota and St. Cloud State. He lost his only match when the Bisons tied Mankato State.

The win over St. Cloud was the second shutout in the school's history and the victory over Minne-

sota was the first for the Bisons over the Big 10 school.

As a prepster, Gary was team captain of the Chartiers (Pa.) High School wrestling team and was the champion of his weight class in the Section 3 tournament in Southwestern Pennsylvania.

Mrs. Kruse said George hopes to return to California again this summer and possibly work at Northrop.

NORTHROP NEWS

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Editor-in-Chief, Bryan Welckera-helmer. **Editors**: Tony Cantafio, Electronics Division; Ivy Edmonds, Electro-Mechanical Division; Peter Toll, Ventura Division; Rosemary Hussey, Business Affairs.

Mailing address: Northrop News, 170/62, Northrop Corporation, 3901 West Broadway, Hawthorne, California 90250.

Rentals Offered

Chalet, Lake Arrowhead No. Shore, furn., 3-bdrm., 2-baths, lake view, avail. June 15 to Sept. 1, \$150 wk., \$500 mo. 213-377-5936. G

Metal Detectors, Goldak Model 720, \$12.50 day, \$20 wk., \$60 7-day wk. 213-674-8088. C

Apt, 1 & 2 bdrms., cpts., dps., bltins, all elec. closed gar., 5 min. to P.V., 20 min. to Hawthorne, \$125-\$160 unfurn., \$145-\$180 furn. 213-375-2091, 213-375-9397. G

Cabin, Idylwild, 1 & 2 bdrm., stream, patio, f/place, \$30-\$35 w/end, \$70-\$90 wk. 213-868-8040. G

Rentals Wanted

Boat, 16' or 18' in or outbd. for w/end in June, fresh water only, no skiing, 2 experienced men, have frame hitch. 213-371-9586, 213-371-0132. H

Apt, 2-bdrm., unfurn., woman w/child, near Northrop, preferably Gardena-Hawthorne area, up to \$145 mo. 213-537-3098. H

Child Care

Child Care offered, my home, fenced yd., hot breakfast & lunch, 5 min. from Northrop. 213-644-5395. I

Child Care offered, daytime, in pvt. home, So. Torrance area. 213-378-9534. I

Child Care offered, ages 2 to 5, my home, weekdays, experienced. 213-756-7041. I

Child Care offered, my home, 2 to 4 yrs. old, fenced yd., hot meals. 213-672-7889. I

Personals

I wish to thank all of my wonderful friends at Northrop for the many flowers & expressions of sympathy in my recent tragic loss. GINNY DREVEN. L

I wish to thank everyone for their concern & cards after the loss of my father. DOROTHY GOODBERRY. L

My family & I wish to express our deepest appreciation to all our friends at Northrop for the flowers & many expressions of sympathy, & the generous donations to the American Cancer Society, at the passing of my wife, Sally. DICK TALLMAN. L

Rides and Riders

Rides Wanted

7:30 a.m. — 4:12 p.m.

Hawthorne Blvd. & Grevillea, Inglewood. Irene E. McCarthy, Aircraft ext. 5041, 213-672-7506.

Rides Offered

7 a.m. — 4 p.m.

West Van Nuys-Reseda area to Anaheim. Jerry Northrop, Elec. Mech. Anaheim ext. 393, 213-343-7003.

Personals

I wish to extend my sincere thanks & appreciation for the cards & gifts upon my retirement. ZENA MORRIS. L

I wish to thank all the people at Northrop who were so helpful during my husband's, Hunter Withers, long illness & death. Especially his friends in Transportation. BARBARA WITHERS. L

My family & I wish to thank our friends at Northrop & NRC for the many expressions of sympathy & plant sent upon the passing of my wife. ALBERT G. MAY. L

Thanks to my friends at Northrop for the kind words upon the death of my mother & to NRC for the flowers. HANS W. METZGER. L

I wish to take this opportunity to thank everyone at Northrop for their generosity & those who helped with arrangements for my "going away" and retirement party. WAYNE MORRISON. L

For Sale or Trade

Engine, K&B Torpedo 35, \$12 or trade for 19 or 20 w/throttle. 213-941-1865. M

Volkswagen, 1969 sedan, auto. stick shift, radio, \$1,850, or take trade-in of earlier model VW sedan. 714-842-2948. M

Lot, improved, R-3, Desert Hot Springs, \$5,950 or trade for dn. on house or units, Torrance-Lomita area. 714-968-5343. M

T-Bird, 1955, 12,000 mi. on rebilt. eng., \$1,200 or trade for American-made sedan

Fisher, Donnell, Freeman—Total Is 64 Years

Friday, Feb. 27, was a memorable day for three Ventura Division men. John A. Fisher, James K. Donnell and William H. Freeman retired that day with a combined 64 years and four months of Northrop service between them.



Mr. Fisher

His first project was as a powerplant designer on the Black Widow night fighter, then in experimental stages. In 1942 he began working on the Flying Wing.

Work on both versions of the Snark missile was followed, in 1955, by his transfer to the Ventura Division. He worked on various drones in Engineering Test, Design, and Planning and Scheduling.

As with many other longtime Northrop employees, his fondest memories are of the Flying Wing project. He was in the project office and at now-Edwards AFB with that big bird.

As for retirement, Mr. Fisher is looking forward to it. "I'm going to do some fishing and just relax," he said. "My goal was college degrees for my three children and that has been accomplished."

One son graduated from West Point and is now a captain in the U.S. Air Force. He is presently assigned as a professor at the Air Force Academy. His daughter, an elementary school teacher, has given him a grandson, and his other son, Bill, was drafted by pro football's Denver Broncos. He teaches school in the off-season.

Mr. Fisher plans to remain at his home in Thousand Oaks where he lives with his wife of 40 years, Kitty.



Mr. Donnell



Mr. Freeman

Jim Donnell, with 19 years and nine months under his belt, is moving from Thousand Oaks to Mexico. For him it is a fitting way to put the lid on 35 years

of work in the aerospace industry.

Mr. Donnell, supervisor of Liaison Engineering, joined Northrop in 1935 as a flight mechanic. After 3½ years he worked for Douglas and Cessna. Then he rejoined Northrop in 1950 as a tool engineer at the Aircraft Division.

He subsequently spent two years in Florida with the Snark Program before moving to off-site liaison engineering with the Canadian F-5 and Norwegian F-5. Both planes are built under Northrop licenses. This job took him to both Canada and Europe several times.

Mr. Donnell transferred to the Ventura Division in January of 1968 to establish the Liaison Engineering branch.

He'll be moving soon to Villa San Miguel, 64 miles south of the border in Baja California. He and his wife, Betty, will live in a casita they built three years ago on 1½ acres atop a knoll overlooking the Pacific Ocean.

Coming down to visit them will be his daughter, Sue, and son-in-law, Bob Hicks. He works in the Plastics Fabrication branch at Ventura. Mr. and Mrs. Hicks are the parents of Mr. Donnell's grandson.

Bill Freeman has spent all of his 15 years and five months of Northrop service at the Ventura Division.

He retired from a 22-year Navy career and took a recovery system design engineering job under Stiles Burke. Mr. Burke is now director of Ventura's International Marketing section.

NAMFI

(Continued from page 1)

inates the two and increases the maneuverability and flexibility of different types of attacks which can be represented.

The target, unhampered by a tow line, can make sharp turns, climbs and dives and duplicate attack runs directly at the missile positions. This kind of realism cannot be achieved with a towing system.

Heading the Ventura Division proposal team was Ralph Friesen.

Mr. Freeman and the Paradynamics team developed the parachute system capability which led to Ventura receiving contracts to produce the recovery systems for the Mercury, Gemini and Apollo programs.

He was Apollo program man-

ager for the first two years and later became chief of Advanced Design. For the past four years he has been Marketing representative for Space Systems.

Mr. Freeman plans to sell his home in Camarillo and enter the recreation vehicle business.



'WAY BACK WHEN'—Fifteen years ago Bill Freeman presented a winning raffle stub to a former Northrop employee at a Management Club dinner. Recently the Management Club honored Mr. Freeman for 15 years of meritorious service. (Photo by curly Martin)

New Business Effort Outlined for Personnel

Where new business for the Ventura Division is going to come from and how that new business is being pursued has been explained to nearly 700 Division personnel in a series of eight meetings.

Addressing personnel from Production Operations, Quality Control, Maintenance and Personnel were John Flores, chief engineer and acting manager of the Engineering department; Robert Bowditch, director of the Advanced Program Development section, Marketing; and M.A. Maurer, vice president and manager, Production Operations.

The discussions were similar to those held for supervision and management by Welko E. Gasich, Division general manager.

The speakers outlined the potential market areas and resulting proposal work for Ventura Division product lines in aeronautical target drones, underwater target drones, recovery systems and aircraft subassembly.

At the conclusion of the in-

formative meetings Mr. Maurer emphasized the responsibilities of Division personnel in contributing to new business.

"Companies receive new business because of two things, cost and quality. We pyramid on success of manufacturing just as we do technical success," Mr. Maurer said.

He praised the past performance of personnel and encouraged the employees to "work with continued diligence toward better quality and lower cost."

REC CLUB

(Continued from page 1)

travel opportunities involving trips to the Orient, Europe, Africa, and the Hawaiian Islands.

Participants are urged to make their own arrangements on Northrop-wide events through the Club offices at the Aircraft Division, Mrs. Prychoda said. Specific Ventura-sponsored events will frequently include bus transportation.



LEADING RECREATION CLUB

From left, Bob Calhoun, Zack Silvers, Tony Piscuskas, Betty Reinisch, Johnnie Via, Dorothy Prychoda, Wade Tilley.

MRS. ROBERT JENNINGS

Venturan's Wife Eyes Operatic Career

The wife of a Ventura Division executive is seriously looking toward an opera career. And it all began when her husband was a Northrop representative to the Stanford-Sloan Program at the Stanford University Graduate

School of Business.

Margaret (Peg) Jennings, wife of Robert L. Jennings, program director, Aerospace Landing Systems, first became interested in opera in 1968.

While her husband attended

classes at Stanford in the Sloan Program, she joined the university chorus and began to study with Stanford's Ivan Rasmussen.

Appearing in amateur musical productions in Thousand Oaks and at San Fernando Valley State College, she has won prizes and critical plaudits. She is now studying with David Scott, opera director at Valley State and president of the National Opera Ass'n.

The mother of two daughters, 9 and 7, once planned a research career. She graduated from Immaculate Heart College summa cum laude majoring in chemistry.

Minors in French and philosophy also branched, informally, into music. She studied piano 10 years and devoted time to the study of music, speech and drama.



Mrs. Jennings

One of his most interesting roles was Pontius Pilate in an Easter Passion play. He also has been seen in "The Big Knife" and "Born Yesterday."

An eight-year Northrop employee, Mr. Dumond is often joined onstage by his wife, Dot. She also has a key role in "Dear Friends" and, among others, had the title role in "I Remember Mama."

"Dear Friends" will end a five-week run this weekend.

DUMOND IS SELF-DESCRIBED 'RAT' ON LITTLE THEATER STAGE, THAT IS

"I'm a real rat," says Lou Dumond. "A jerk."

But that's when he is on the Conejo Players stage in the little theater group's current production of "Dear Friends" and not when he is at work in the Engineering Administration group at the Ventura Division.

"Dear Friends" is a tension-filled drama involving the deep-seated feelings of four couples, Mr. Dumond explains. "And when these feelings come out in the play I portray a hard-hearted rat," he says with a smile.

This is Mr. Dumond's sixth time on the boards of the Conejo Valley theater. He debuted nine

On The Job...



MINA CARR has been a general accountant in the Finance department at the Ventura Division for the past 13 years. Her husband, Bill, has been in the Ventura Timekeeping section for seven years. (Photo by Robert Thornton)

NORTHROP NEWS

VENTURA DIVISION EDITION

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Vol. 28, No. 5

March 18, 1970

Record Suggestion Award Of \$900 Presented to Mrs. Dianne Scheidler

It may have been a relatively simple suggestion but it won Dianne Scheidler a record \$900 cash award in the Ventura Division's Suggestion Awards Program.

Mrs. Scheidler, of Plastic Lamination, felt that thermocouple wires used in measuring heat during treatment of 747 panels in the autoclave should be re-used and not discarded.

The heat indicating wires, she noted, were used in 106 panels per shipset. When autoclave heat treatment concluded the highly expensive wiring was snipped and discarded. So, she figured, why not wrap the wiring in special material before inserting it in the panels? Then the wires could be re-used.

On the basis of 20 shipsets per coupling, the estimated savings is more than \$15,000.

Mrs. Scheidler received the award and congratulations for her ingenuity from Larry Carroll, manager of the Boeing 747 program; Walt Sternadel, manager of the Finance department; and Tony Trujillo, her foreman. Ceremonies took place in Mr. Carroll's office.

Although Mrs. Scheidler has submitted several suggestions since coming to work at Ventura on Dec. 9, 1968, this is her first major award. It tops a \$500 award in 1969 presented to Sam Vargo of the Quality Control Laboratory.



INVENTION EVALUATION COMMITTEE REVIEWS INVENTIONS
From left, Tom Tapper, Lauren Persons, Dillon Cox, Hal Ort, Enos Jeffs and Frank Tipton.

Increased Participation, Service Is Goal of New Patent Chairman

"We know the Ventura Division has employees with ideas for worthwhile inventions which should be patented. It is our goal to streamline our system and encourage these people to make timely disclosures."

That's the word from Dillon

Cox, chairman of the Invention Evaluation Committee, recently appointed by Welko Gasich, Division general manager. The new committee supersedes the old Patent Committee.

The number of Ventura Division employee disclosures has

been somewhat disappointing for the past year, Mr. Cox explained, to the detriment of both the corporation and the inventive personnel.

"Now we are updating the files, working with the Corporate Patent department in assessing the backlog of inventions, and getting a status report back to the inventor just as soon as possible."

Three things can happen when the committee reviews an invention disclosure for U.S. and foreign patent application:

1. The invention can become the subject of a patent application. The inventor receives a first cash award under the Patent Award Plan when the patent application is filed and another if and when the patent is issued.

2. If the invention can be patented, the corporation may thereafter establish a licensing agreement for production of the product by a third party. The Patent Award Plan provides for participation by the inventor in the royalty payments, if any, received by the corporation.

3. If after preliminary investigation, the idea is deemed either unpatentable or not compatible with Northrop needs or production activities it will be considered for release back to the inventor upon his written request.

"We want to promptly look at the ideas, assess them, act, and communicate," said Mr. Cox, "assuring that the inventor does not remain in a state of unknowing limbo."

To expedite the communication between the inventor and the committee a new system is being devised.

The major change in the operation calls for the inventor to submit his invention disclosure directly to the committee. The committee will make a prompt assessment and coordinate with the Corporate Patent department as to the likelihood of any patentable features.

"If an inventor can't adequately express his invention he should contact any of the committee members. We will help him fill out the forms and get the ball rolling," Mr. Cox said.

Doing Business With J.A.



SELLING A MEMO PAD to Ventura's Dick Warner in a recent lunchtime sales campaign by members of Northrop-counseled Junior Achievement company Conico is Anne Lorensten, 15, daughter of JA Advisor Eldie Lorentsen.

Ventura Suggestion Plan Guided by Warren Clymer

Warren Clymer is the key man in the Ventura Division's Suggestion Awards Program.

As the Division's Suggestion Awards coordinator he processes from 40-50 suggestion ideas per month. An employee of the Fi-

nance department, Mr. Clymer has been on this job for two years.

"We try to cover every base in evaluating the suggestions," Mr. Clymer explains. "They are reviewed at all levels of production in the suggester's field, assessed at the director level and then given a full evaluation by the Suggestion Awards Committee."

The process, involving many people, usually takes from 10-30 days; "sometimes longer and sometimes shorter, depending upon the individual idea."

Suggestion volume represents approximately one suggestion for each two employees at the Ventura Division, Mr. Clymer said. From \$8,000 to \$10,000 is given to suggesters each calendar year.

Mr. Clymer said the record suggestion award of \$900 this week is still short of the \$2,000 maximum which the division can award. Minimum award is \$10.



Warren Clymer

(See CLYMER, page 6)

Top Greek Military Men Visit Here To Tour Chukar Production Facility

Four high-level Greek military men recently visited the Ventura Division to tour the Chukar (MQM-74A) production facility and later witness a flight demonstration of the target drone at Pt. Mugu.

Evaluating the Northrop drone with an eye toward Northrop's proposal for use of the drone at the NAMFI missile range on the island of Crete were Air Force Brig. Gen. B. J. Papavassiliou, Air Force civilian employee Elias Papandreadis, Navy Capt. A. Pettas and Army Lt. Col. A. Marathias.

"This was the first opportunity these men had to witness actual operation of the Chukar and how the target functions with the Hawk radar system," explained Stiles Burke, director of the International Marketing section.

The visitors are members of the NAMFI Bid Committee which is evaluating proposals for follow-on target contracts in training NATO Hawk ground-to-air missile teams.

Mr. Burke described the visit as one which provided the Greeks with "meaningful information" in their evaluation process.

Technical review of three pro-

posals, including Northrop's, will take place March 18, Mr. Burke said.

After announcement of the technical committee's findings, proposals will be reviewed by the NAMFI executive committee and the Greek minister of defense and then another meeting will take place at which time cost proposals will be opened and the contract awarded.

TOURNEY SET

Members of the Ventura Division Golf Club will hope for clear weather when they play the Green Tree Golf Club in Victorville on March 21.

Their last tournament, Feb. 28 at the Ventura Municipal Golf Course in Montalvo, was rained out. "We still had 15-20 optimistic golfers show up in the hope it would stop raining," commented Lou Gabriel, golf club president.

Odds favor the golfers this time. It doesn't rain as much in the Mojave Desert as it does in the Ventura coastal area. Mr. Gabriel, ext. 248, can provide detailed information for interested golfers.

NORTHROP IN SHUTTLE COMPETITION

Northrop's Aircraft Division has been selected as an associate contractor by Grumman Aerospace Corporation in its bid for a study contract for the Space Shuttle System.

This is expected to be one of NASA's next big programs following Apollo.

(Related Story, Page 3)

Other members of the Grumman team are Eastern Airlines and the Aerospace Group of General Electric Co.

This system represents a low-

cost means of providing repeated flights of crews and supplies to and from earth-orbiting space stations.

Northrop's responsibility in the Grumman-led team is the development of orbiter technology. A comparatively large vehicle, the orbiter would have a 50,000-pound payload capacity and measure as much as 200 feet long and 25 feet in diameter.

An on-site Northrop group now working at Grumman headquarters is led by J. Stalony-Dobrzanski.

Creativity Mixes With Reward In Northrop Suggestion Program

The Northrop Corporation has come a long way since John K. Northrop and a handful of hard-working men were designing airplanes at the Hawthorne Hotel in the late 1930's.

Back in those days the man in the shop with an idea to improve the product or its production could just suggest it to his foreman and together they would implement the suggestion.

And the suggester got a turkey at Christmas, or a fishing trip as well as the pride and satisfaction in knowing he had contributed to the betterment of the product.

But that was back in the days

JONES ELECTED TO BANK DIRECTORSHIP

Thomas V. Jones, Northrop president, has been elected to membership on the boards of directors of the Wells Fargo Bank and its parent firm, Wells Fargo & Company, Richard P. Cooley, Wells Fargo president and chief executive, has announced.

Mr. Jones also is a member of the boards of directors of United States Steel Corporation and of the Times Mirror Company.

R&D Team Develops New Method of Cooling Metal

The Manufacturing Research and Development team at the Aircraft Division adapted an improved Boeing production method which not only saves time and money but also improves the quality of the product.

The latest innovation is known as the "Synthetic Quench." It is a proprietary process of cooling hot metal without damaging the sheets, extrusions or plates. It also eliminates the extensive operation of restoring the damaged metal to its original configuration.

A. P. "Al" Langlois, deputy manager of Manufacturing R&D, described the problem this way:

"Heat treatment of the metal parts (from 870 to 1,000 degrees F.) and the necessary cooling process (in water 60-100 degrees F.) used to bring major trouble.

"When a piece went into the liquid as straight as a board, for example, it would come out look-

when Northrop employees were counted by the dozens. Today they are counted by the thousands and the oral suggestion to the foreman has given way to a system more practical for a large corporation.

There is a wealth of creativity at every level in our company and the best vehicle for conveying these ideas to management—in a corporation as big as ours—is through the Suggestion Awards Program.

Affiliation

Northrop is a member of the National Assn. of Suggestion Systems, a group representing 1,300 companies across the country. These companies had an average of four suggestions for every 10 employees. And so did Northrop.

More than 2,000 Northrop employees received awards for their ideas last year. The awards totaled more than \$70,000. The largest award is \$2,000 and has been presented more than once to Aircraft Division personnel. The minimum is \$10.

But cash prizes are not the only incentive. It is in the best interests of the company and, obviously, its employees to come up

with ways of cutting costs while improving or maintaining high quality.

Northrop's formal Suggestion Awards Program began June 24, 1946, at the Aircraft Division and branched out into a formalized operation at subsequent divisions.

Today it is an ongoing project at each division. Both management and the personnel are responding to the success of the program.

Northrop In The Eyes of The World

The Northrop F-5 aircraft program is featured on the cover and in a three-page article in the March 16 issue of Aviation Week.

Based on an interview of Aircraft Division executives by William S. Hieronymus, engineering editor, the article cites factors enabling the F-5 "to meet, and often surpass, maintenance and operational readiness goals."

In addition the article states, "Northrop has delivered 650 of the aircraft on schedule and within price objectives."

Other recent articles on Northrop's progress have appeared in the March 7 issue of Business Week and the March 9 issue of TIME.

ICE CAPADES

A savings of \$1.50 per ticket is being offered Northrop families in a special Northrop night at the Ice Capades May 3.

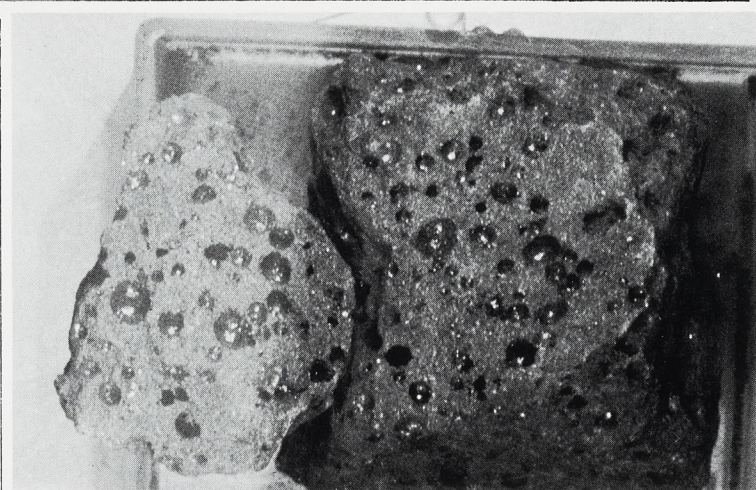
The 5 p.m. show at the Los Angeles Sports Arena features all the thrills and color of this top ice attraction. Northrop has reserved 1,000 seats, the best in the house.

Normally selling for \$5 each, tickets are available to Northrop personnel for just \$3.50 each. Contact Personnel Activities outlets.

SPRING DANCE

Personnel Activities ticket outlets in the Hawthorne complex are offering tickets for NRC's big Spring Dance set for April 25 at NRC Clubhouse, Hawthorne.

The \$3 per person tab includes dancing from 9 p.m. to 1 a.m. and all liquid refreshments.



LUNAR SAMPLES to be studied by Northrop scientists may include sliced rock, above, and microscopic photo of similar sample, below. The shiny, glass-like spheres in bottom photo are 1/50th of an inch in diameter. It is believed the beads are the result of meteor strikes. (NASA Photos)



Northrop Scientists to Study Lunar Samples

Northrop Corporation has been selected by the National Aeronautics and Space Administration (NASA) to perform detailed analysis on a portion of the lunar material returned from the moon in November 1969 by the Apollo 12 astronauts.

Dr. Donald A. Hicks, Northrop vice president of Corporate Research, has named Dr. Y. P. Gupta, director of the Northrop Corporate Laboratories' Materials Sciences Laboratory, to serve as principal investigator of the lunar material.

Dr. Gupta will lead a research team with an assigned investigation task to "Determine the Elemental Composition of Lunar Material by Auger Electron Spectroscopy."

Lunar material in use at NCL during the studies must be maintained under strict security practices at all times by contractual agreements, Dr. Hicks said.

NASA's Manned Spacecraft Center at Houston is distributing 28.6 pounds of material gathered on the Apollo 12 mission. This represents about 40 per cent of the material collected by Astronauts Charles Conrad, Jr. and Alan L. Bean.

The material, in the form of rocks, chips and fine material and thin sections, is being distributed to 139 United States and 54 foreign scientists for study.

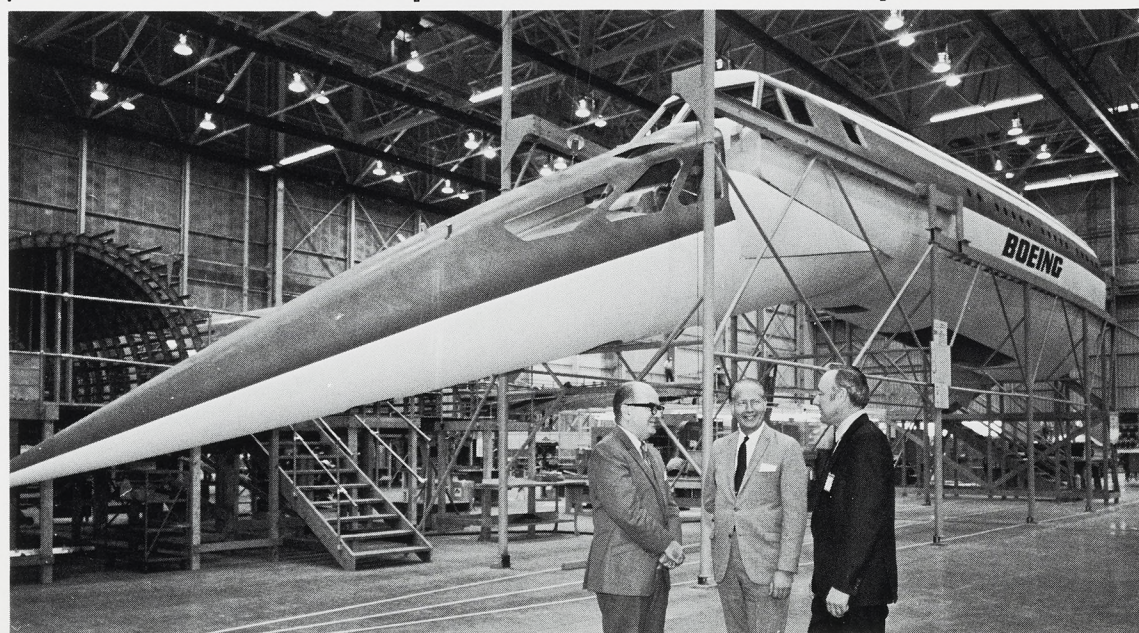
Glass-Like

Most of the material—there are 1,621 individual pieces being distributed—is made up of coarse-grained crystalline with abundant pits and glass splashes throughout.

Preliminary examinations conducted by NASA show most of the Apollo 12 material to be about one billion years younger than the age of samples taken by Apollo 11.

Dr. Gupta, along with other principal investigators, will report his findings at a Lunar Science Conference scheduled to be held in Houston in January 1971.

Northrop Men Visit SST Mockup



LOWELL J. YANCEY, SST program manager, center, and Daniel E. O'Halloran, Aircraft Division manager of Aircraft Inspection, left, view SST mockup during a tour of Boeing's Developmental Center. Stan E. Weeks, manager of Quality Technical Support in Boeing's SST Division, escorted the Northrop men.

March 31 Cutoff Date Announced For Medicare B

Individuals born between Oct. 1, 1901, and Oct. 2, 1902, who have never signed up for Part B of Medicare have only until March 31 to do so.

March 31 is the close of the 1970 Medicare enrollment period. The first three months of each year is an open enrollment period during which people over 65 who failed to enroll at their first opportunity may sign up.

Most people should sign up for Part B in the three months before or after they reach 65. For those who miss the chance the present Social Security law provides only three additional opportunities to enroll.

Any Social Security office will provide information.

Northrop Men in Featured Roles At AIAA Symposium

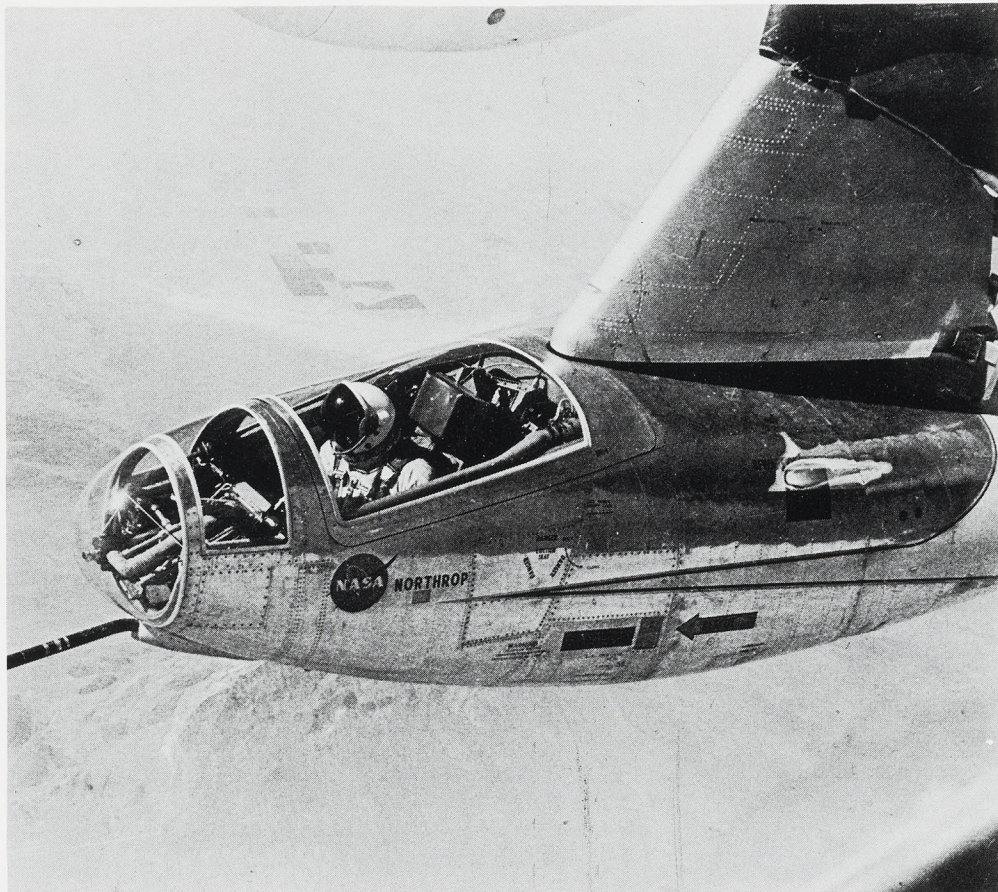
Northrop executives and engineers had key roles in the Fighter Aircraft Symposium held recently in St. Louis under auspices of the American Institute of Aeronautics and Astronautics. More than 700 leading aircraft designers attended.

A technical paper describing requirements for design of superior fighter aircraft at low cost was presented by W. E. Fellers, Advanced Systems, and John Pattierno, Aerodynamics and Propulsion.

Roy P. Jackson, vice president and assistant general manager, Aircraft Division, was a principal speaker at a luncheon session. The subject of his talk was "Challenge the Design Teams."

FOR SPACE SHUTTLE

Northrop Experience With Lifting Bodies Is Key to Proposal



PILOT JOHN MANKE AT HL-10 CONTROLS BEFORE SEPARATION FROM B-52 AT 45,000 FEET. (NASA PHOTOS)

The technology of Northrop's pioneering work on lifting body entry vehicles—the NASA M2-F2, HL-10 and future advanced systems—is coming of age.

Grumman Aerospace Corporation selected Northrop in its bid for a study contract for the Space Transportation System (STS) or Space Shuttle for one major reason—Northrop's lifting body experience and re-entry expertise.

The STS represents the next generation of space flight. Following NASA's Skylab (formerly Apollo Applications) Program, the Space Shuttle would be designed to transport men and materials between earth and orbiting laboratories and space stations.

Basically, the STS would work like this:

Two vehicles, one mounted atop the other, would be launched as one in "piggyback" fashion. At about 200,000 feet altitude the booster, or bottom half of the vehicle, would separate and return to a horizontal land-landing.

The orbiter, or top half, in the meantime would ignite rocket engines and enter an Earth orbit in space. The orbiter would link up with an orbiting space station, exchange passengers and cargo, and re-enter the Earth's atmosphere for a horizontal land-landing.

Both the so-called booster and orbiter would have two-man crews. The booster would return to Earth immediately and the orbiter, with a minimum of 12 passengers and a cargo compartment of 15 by 60 feet, carrying 50,000 pounds,

might not return for as long as 30 days.

This Buck Rogers-style of space travel will take place in 1976-77, according to NASA timetables.

One of the most crucial phases of the operation is the hypersonic re-entry into the Earth's atmosphere and the subsonic landing at an airport or spaceport. With almost ten years of related research, including five years of working with NASA on manned flight research with lifting bodies, Northrop has accumulated a unique position of expertise in this field.

The two major concerns of the re-entry and landing phase are flexibility of selection of the landing time and place, and safety in the face of intense heating.

Lifting Body Flight Technology

After 35 piloted flights with the HL-10 and 16 with the M2-F2 at the NASA Flight Research Center, both Northrop and NASA have high confidence in the supersonic atmospheric flight, subsonic approach and landing phases of the operations.

For the critical re-entry phase, Northrop has a systems design approach which many experts judge to be head and shoulders above the other competing systems, in achieving the greatest possible vehicle performance with assured safety without carrying excess weight and heat shielding into orbit.

Northrop's system design concept is known as "Temperature Rate Flight Control" (TRFC). It not only doubles the "footprint" (area on the

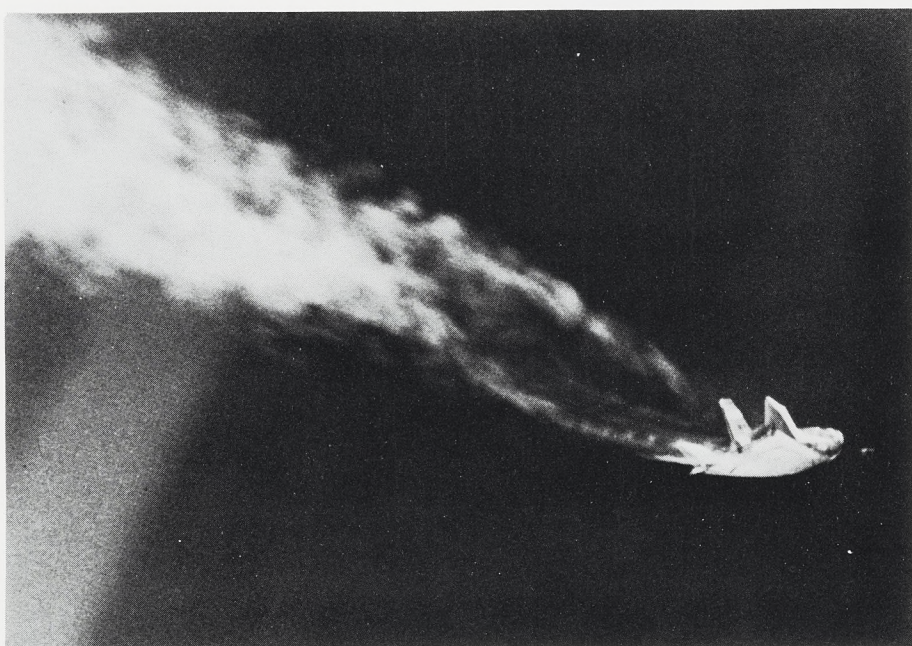
Earth's surface in which the pilot may select a landing site) but also assures the safety of the vehicle and the pilot. A key feature of this approach is the direct use of changes in temperature measured on the surface of the vehicle as the primary inputs of vehicle control information, according to Dr. L. R. Fowell, manager of Special Programs at the Aircraft Division.

"This design concept provides a footprint twice as big and prevents any steering commands being given to the vehicle that might result in accidental overheating," Dr. Fowell explained.

The system now used on the Apollo Program, for example, utilizes a computer with stored information—rather than instantaneously measured information—on pre-determined and assumed atmospheric conditions for a pre-selected landing site.

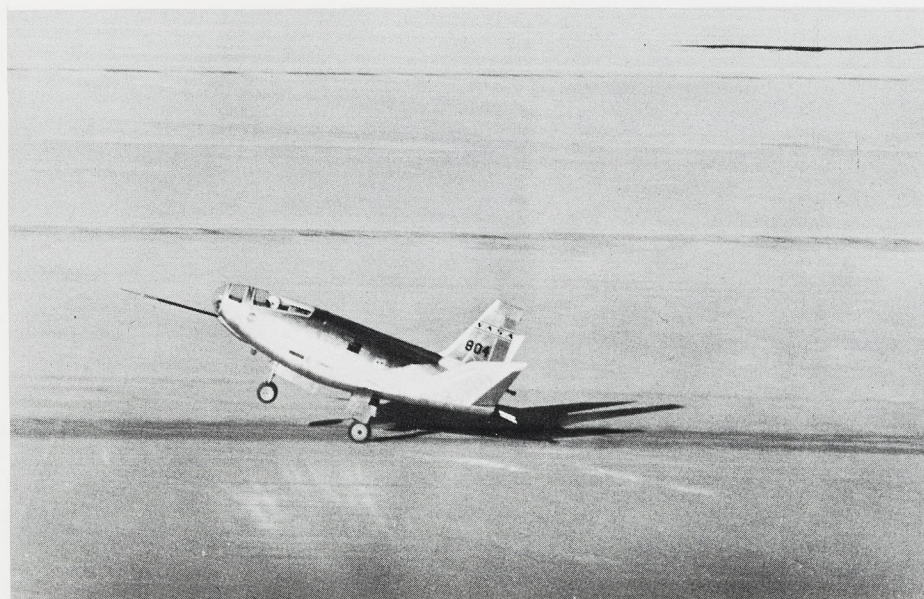
"Since the space shuttle must be more flexible in its options—with more freedom of choice of the time and place at which it leaves orbit, and still have the ability to land at pre-selected sites, the control system concept developed here at Northrop is very attractive in offering this flexibility for safe operations meeting the desired performance," Dr. Fowell added.

If the Temperature Rate Flight Control concept is adopted in the Design Definition Study which is currently being proposed, and in subsequent phases, it will be a key link in the success of the space shuttle chain.



ROCKET-POWERED THRUST displays HL-10 contrail in climbing exercise over California desert.

TOUCHDOWN on Rogers Dry Lake near Edwards AFB for HL-10.





MAKING A SHARP TURN
Rick Wilson finds competition an interesting past time.

Early Ski Trips Were A Challenge to Rick Wilson

Things have certainly changed since Rick Wilson took up his favorite hobby of skiing.

"We would pack a ruck sack with food and water. With our skis over our shoulder, we would hike to the top of a likely hill. Then ski down. And repeat the process, over and over," Rick recalls.

The time was the late 1930's. The locale, the San Bernardino Mountains. Rick was a lad of 16 at the time.

Over the next 30 years Rick watched his favorite areas install rope tows and T-bars, then chair lifts and, in some cases, gondolas. Massive ski chalets and lodges anchor most ski areas

now. And reservations are required well in advance for most areas.

Rick has tried his luck on just about every ski area in California, Utah and Colorado, plus most of the favorite East Coast ski areas. He recently enjoyed his annual skiing vacation in Aspen, Col.

Next Christmas he hopes to realize a lifetime dream of a skiing vacation in Switzerland.

Rick is affiliated with the Northrop, Beach Cities and Far West Ski organizations.

Do Your Thing

One of his latest innovations is skiing in competition. He likes the rokka races.

Has he ever won an event? "Not yet. The thing is to compete, to be out on the slopes, doing your thing. There is nothing like it," Rick says.

When not skiing, Rick Wilson likes to fill his spare time with fishing aboard his 25-foot boat off the California coast and in golfing with Northrop friends.

James McDaniel Cited for Valor

James W. McDaniel, Research and Development contract administrator, Aircraft Division, has received the Bronze Star medal with V device for valor in a military ceremony conducted by Col. Robert P. Fuqua, Northrop Air Force Plant representative.

In making the presentation, Col. Fuqua said that Mr. McDaniel, then a captain in the United States Air Force, was the job control shift officer with the 4258th Strategic Wing at U-Tapao Airfield, Thailand. A fire occurred in the base bomb storage area on Aug. 7, 1968.



BRONZE STAR
James McDaniel with Col. R. P. Fuqua.

Alerted to the danger, Captain McDaniel — despite nine secondary explosions of 750-pound conventional bombs — assisted in towing B-52 bombers out of the area to prevent certain damage.

"His action not only saved numerous B-52s from destruction," Col. Fuqua said, "but insured their continued availability for combat missions."

Northrop P-61 Was A Welcome Sight

"And that is the reason I'm here," said Rudy Ramirez, pointing to a photograph of the Northrop P-61 Black Widow which appeared in an historical article in the Feb. 4 issue of the Northrop News.

The article recalled to Mr. Ramirez, now a storekeeper for the Electro-Mechanical Division, the time he was with the 281st Bomb Squadron (Heavy), a B-17 group in England during World War II.

In The Alley

"We were stationed at Ridge-well in what was known as Buzz Bomb Alley," he said. "I remember one night in July 1944 when I parked my truck about midnight and started for my hut. Suddenly the sky lighted up as bright as day. A German bomber had dropped flares to guide an attack. Three of us were caught in the open.

"The best cover we could find was a shallow ditch, but it left us right in line for the bomber's attack. Just when I thought I'd 'had it,' I saw something flash across the sky in front of the parachute flare. It was headed straight for the German bomber. Then I saw twin booms and thought the newcomer was a P-38. It flashed by the incoming bomber and I thought the pilot had missed. Then the sky lit up with a terrific explosion.

What A Feeling

"I had never been so happy in my life. I got up blessing the pilot. Just then there was an announcement over the loudspeaker system from the base tower. It told us that we had been saved by a new airplane called the Northrop Black Widow which had just been introduced into combat."

This was the first time Mr. Ramirez had heard the name Northrop, "but I never forgot it," he said. "In 1951 my brothers, all of whom worked in defense plants, convinced me I should change to

this work too.

"I looked around at the various companies where they worked, but turned down offers to join the same companies. The name Northrop still stuck in my mind and I felt I wanted to help build the airplane that had helped me out in 1944."

He found, when he applied for work with Northrop, that the P-

61 had been phased out, but he was offered a job helping with the F-89 Scorpion. He took it, working in Lynwood until he came to Anaheim in 1959 as a storekeeper.

"And that," he concluded, "is why I'm both alive and working at Northrop. I owe it all to an airplane called the Black Widow."



RUDY THEN AND NOW

Rudy Ramirez today and, background, was when he was in England during World War II. Referring to the name, "Los Angeles, City Limits" on the B-17, he says, "You can see, I never left home."

SPACE IS STILL AVAILABLE ON TWO NRC GROUP TOURS THIS SUMMER

Northrop Travel Club still has space available for Northrop families and friends on two special group travel excursions planned for the summer months.

An airfare only charter flight to Europe departs Los Angeles May 31 and returns from London June 29. The price is only \$285 per person.

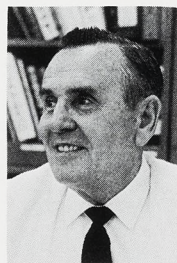
Then Aug. 22 an all-inclusive tour departs Los Angeles for stops in Spain, Portugal and North Africa. The 22-day trip costs \$695 per person, plus \$49 in tax and service fees. It includes hotels and two meals per

day, except for London and Madrid where one meal will be included.

At 7:30 p.m. April 10 a meeting to discuss details is set for the NRC Clubhouse, Hawthorne. Contact Personnel Activities for reservations or brochures covering each trip.

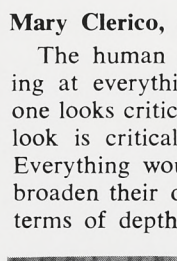
**IS IT NEWS?
CALL EXT. 4273
HAWTHORNE**

OPINIONS, PLEASE—What Is The Most Critical Problem Facing Our Nation?



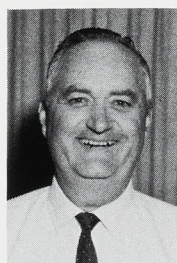
Alex MacMillan, mechanical engineer, Aircraft:

The need for basic honesty and the truth. Each day we are besieged by slanted answers and biased opinions involving national problems. It is hard to determine who to believe or what. If we could only be told the truth, then we could decide for ourselves what is best. Real down-to-earth honesty is what we need now more than anything else.



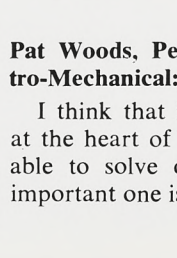
Mary Clerico, contract coordinator, Ventura:

The human problem. It's a matter of looking at everything in a broader perspective. If one looks critically at everything then their outlook is critical. The same is true in reverse. Everything would be better if everyone would broaden their outlook. The idea is thinking in terms of depth rather than in cliches.



H. W. "Chuck" Ragland, mechanical design engineer, Electronics:

Civil unrest. Individuals who are making a good living should not ignore or deny other people the chance to make a decent living. History has proven that the end result can only be destruction.



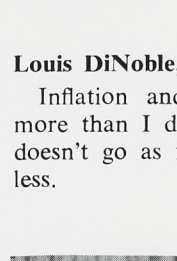
Pat Woods, Personnel Records assistant, Electro-Mechanical:

I think that it is campus unrest. This strikes at the heart of law and order, and we'll not be able to solve other problems until this really important one is settled.



Betty Rios, clerk, Aircraft:

A settlement in Vietnam. Our involvement there has created more misunderstanding than anything in recent history. It has divided us. Regardless of whether you feel we should or should not be there, you cannot help but feel a settlement is needed. We need to get together again, to help bridge the generation gap, to understand one another.



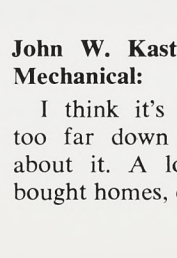
Louis DiNoble, tool and die maker, Ventura:

Inflation and increased costs. I'm making more than I did 10 years ago but the money doesn't go as far at all. It costs more to buy less.



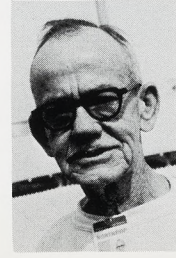
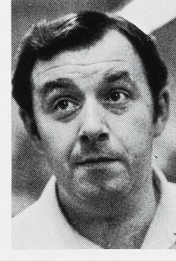
Dale Henley, material project specialist, Electronics:

Government priorities. I feel we should take care of our problems at home before trying to solve the problems of the world.



John W. Kastner, master mechanic, Electro-Mechanical:

I think it's unemployment. Things may go too far down before anybody does anything about it. A lot of young people, who have bought homes, could get hurt.



Classified

Classified ad service is provided free of charge to all Northrop personnel. Ads for agencies, commercial enterprises and private businesses are not accepted. The Northrop News reserves the right to edit or omit ads. Obtain ad form C67 from organization clerk and mail ad to Northrop News, 170, zone 62. Ads are limited to one item and one ad per person each issue. Deadline is noon Wednesday, one week before publication.

Automobiles For Sale

Dodge, 1967 RT, 440, Torkfit, mags, \$1,650. 714-842-6020. A

Chrysler, 1968 New Yorker, 4-dr. sedan, p/w, p/s, p/b, r/h, a/c, tape deck, \$3,300. 213-888-8027. A

Falcon, 1962, 6-cyl., stick, 2-dr., r/h, \$185. 213-679-4464. A

Buick, 1964 Riviera, full power, a/c, \$1,195. 213-759-0493. A

Dodge, 1965 Dart, auto. trans., radio, 4-dr., \$795. 714-528-3758. A

Station Wagon, 1966 Ford, c/s, Mod. 76, 390, a/c, full power, extras, \$1,750. 213-378-4959. A

Firebird, 1969 350, a/c, radio w/rear spkr., Turbomatic trans., many extras, \$3,200. 213-547-0371. A

Dodge, 1966 Dart, 2-dr. h/top, V-8 eng., a/c, auto. trans., p/s, r/h, \$1,150. 213-644-0378. A

Studebaker, 1957 Silver Hawk, 289, V-8, o/hauled eng., \$200. 213-377-9723. A

Buick, 1966 Riviera GS, full power, all extras, \$1,995. 213-679-3215. A

Volkswagen van, paneled, stereo, tape player, new brakes, eng. & trans., \$1,395. 213-862-3027. A

Camaro, 1967, 327 V-8, auto. trans., fact. air., radio, \$1,800. 714-646-3806. A

Chevrolet, 1963 Impala, p/s, new tires & tune up, \$550. 213-378-1488. A

TR-4, 1964, new tires, r/h, \$1,350. 213-671-8728. A

El Camino, 1959, new int., \$550. 213-341-5671. A

Pickup, 1964 Chev., big 292, 6-cyl., auto. trans., 8' bed, r/h, alum. shell camper, \$900. 213-324-6467. A

Corvette, 1967, 427 cu. in., 450 h.p., Muncie 4-spd., \$2,400. 213-372-6740. A

Oldsmobile, 1962 88, 4-dr., \$500. 213-320-5895. A

Volkswagen, 1968, AM-FM, radials, \$1,595. 213-477-5734. A

Volvo, 1965 122S, 4-dr., r/h, new paint, bat., \$1,250. Box 501. A

Mercedes Benz, 1961 220, \$750. 213-373-5068. A

Ford, 1930 Model A, coupe, completely rebilt., \$1,500. 213-866-1447. A

Station Wagon, 1966 Chevrolet, 3-spd., auto. trans., 396 eng., a/c, p/s, air o/load shocks, lug. rack, \$1,495. 213-347-0193. A

Dodge, 1961, 4-dr., 6-cyl., recent motor tune-up, \$395. 213-674-0852 after 3 p.m. A

Mercury, 1960, 2-dr., \$200. 213-379-0330. A

Ford, LTD 4-dr. h/top, auto. trans., p/b, p/s, fact. air, \$1,495. 213-370-0197. A

Oldsmobile, 1965 Delta 88, full power, min. bid, \$925. Credit Union ext. 1117. A

Mustang, 1969 Fastback, fact. air, 14,000 mi., \$2,695. 213-376-1587. A

Ford, 1965 Galaxie 500, 2-dr., 352 eng., auto. trans., p/s, AM-FM, \$950. 714-968-5343. A

Model A, 1928 cpe., not running, needs body work, \$250. 213-923-1742. A

Volvo, 1959, \$450. 213-323-4199. A

Chevrolet, 1964 SS Malibu, 4-spd., mag whls., \$1,095. 213-582-1079. A

Dune Buggy, new clutch & exhaust sys., \$750. 213-672-6952. A

Volkswagen, 1958, 5 new tires & clutch, radio, \$400. 213-374-8670. A

Pontiac, 1964 Grand Prix, 2-dr. h/top, 4-spd., p/s, p/b, a/c, r/h, \$1,000. 213-676-5814. A

MGA, convt., eng. recently o/hauled, \$750. 213-423-1363. A

Ford, 1964 Fairlane, 302 V-8, 4-spd., r/h, \$1,100. 213-327-0493. A

Dodge, 1964 Polara convt., \$695. 213-340-4472. A

Cadillac, 1963 Coupe de Ville, all power, a/c, AM-FM, \$975. 213-645-7761. A

Chevrolet, 1965 Impala, V-8, 2-dr. h/top, p/s, a/c, \$1,295. 213-327-4672. A

Chevrolet, 1967, 2-dr. sedan, V-8, auto., \$300. 213-676-9330. A

Volkswagen, 1967, radio, \$1,300. 213-268-9608 after 6 p.m. A

Household Items For Sale

Stove, O'Keefe & Merritt, 4-burner, center griddle, \$25. 213-823-7121. B

Dining Room Set, white formica, modern chairs, blue & green pattern, \$60. 213-542-2537. B

Washer, white, Maytag, top loading, \$75. 213-532-2823. B

Range, 30" elec., \$50. 213-324-3614. B

Dining Room Set, table, 2 leaves, 4 wicker-back chairs, china closet w/3 glass drs., fruitwood w/myrtle burl trim, \$450. 213-370-7092. B

Chairs, 2 orange velvet barrel-type, \$25 ea. 213-679-4241. B

Household Items For Sale

Range, Philco elec., & refrig., \$75. 213-327-2476. B

Sofa, 7½', low profile, 3-cushion, mod., green tweed w/arms partly of wood, 8 mos. old, \$100. 213-542-5664. B

Chair, contour for 2, Cuddler, elec. tilt & massage, \$250. 213-326-6195. B

Headboard, dble., mattress, box springs, frame, \$25. 213-830-1365. B

Rug, 12'x15' light beige, 6 mos. old, \$50. 213-393-3220. B

Range, Wedgewood, 4-burner, center grill, \$55. 213-379-2980. B

Bed, baby's, mattress, used 3 wks., \$20. 213-542-4226. B

Tables, marble top cocktail & 2 end tables, walnut legs, \$45. 213-370-3821. B

Davenport, 3-pc. sectional, \$55. 213-662-5388, 213-776-4845. B

Stove, apt. size, copper tone, \$20. 213-549-1658. B

Sofa & chair, modern, mfg. by Kroehler, \$55. 213-327-2279. B

Rocking Chair, gold uphol., \$25. 213-425-5168. B

Sofa, 2 chairs, lamps, coffee table, end table, less than 6 mos. old, \$350. 213-834-3162. B

Rug, beige acrilan, hi-lo pile, 4 yrs. old, \$50. 714-839-6117. B

Washer, Kenmore, & gas dryer, matched, 3 yrs. old, \$235. 714-528-2426. B

Crib, full size, maple finish bumper guard & foam mattress, \$35. 213-670-5927. B

Crib, Kant Wet mattress, \$30, other items. 213-376-3624. B

Miscellaneous For Sale

Teletype Equipment, FGC-1 terminal unit, \$250. 714-633-1037. C

Gas Tank, w/shield, safety guard, back rest for XLH sportster, \$75. 213-644-2668. C

Knitting Machine, Sears Orion, dble. bed, instructions, w/cabinet, 4 yrs. old, \$250. 213-537-3098. C

Pups, miniature black & tan dachshund, 7 wks. old, pedigree, \$35. 213-756-7041. C

TV, Zenith remote-control console, b/w, needs repair, \$15. 213-823-5225. C

Bucket Seats, for 1964 Malibu, black, \$50. 213-325-3452. C

Motorcycle, 1969 Yamaha Enduro, 250 cc, less than 500 mi., still under fact. warranty, \$725. 805-252-5846. C

Golf Club Set, 1966, McGregor tourney pro-line, D-2 swing wt., cart, bag, other access., \$85. 714-827-0357. C

Travel Trailer, Santa Fe Cub, 12', many extras, \$650. 213-630-4700. C

Mini Bike, 3½ h.p. Briggs & Stratton eng., \$95. 714-526-2962. C

Cabin Cruiser, 1966 24' fiberglass Coronet, twin Volvo I/O, sleeps 4, many extras, \$5,250. 213-378-5494. C

Stereo Tape, Muntz, 4-track, still under warranty, \$45. 213-676-5141. C

Lot, half acre bldg. site on Foothill Dr. in Agoura, horses o.k., utils. in, \$8,500. 213-783-8271. C

Ski Boots, men's, size 9, \$7.50. 714-523-5315. C

Mobile Home, 1968 Flamingo, 12x55, Rolling Hills area, adults only, awnings, skirting, storage bin, \$6,900. 213-326-1382. C

Rancho, 1 plus acre, Apple Valley, fully improved, zoned for horse, corral, terms, \$7,950. 213-325-8211. C

Shelf System, pole-supported, free-standing, 5x3' shelves, for approx. 8' ceiling, complete, \$20. 213-645-7972. C

Typewriter, Remington noiseless, full size, \$47.50. 213-675-0788. C

Stereo, AM-FM radio, bitin bar, \$150. 213-632-2661. C

Organ, Estey elec., 24-bass, \$100. 213-675-6020. C

Playpen, extra lge., mesh-type, \$10. 213-926-4197. C

Go Cart, \$50. 213-676-5787, 10 a.m. & 3 p.m. C

Vacuum Cleaner, Hoover convt., extra attachments, \$30. 213-375-2091, 213-375-9397. C

Acreage, 10 acre parcel, Lancaster near Edwards AFB, \$1,350 acre. 714-968-2780. C

Home, 3-bdrm. & family rm., 2 baths, covered patio, f/place, bltins, dps., cpts. new paint in & out, \$29,500. 213-835-5052. C

Lots, 3, Green Valley Lake, \$4,500. 213- 421-1501. C

Rowboat, 13', oars, anchor, life jackets, \$85. 213-371-5072. C

Motorcycle, 250 BSA, \$300. 213-675-4038. C

Pup, boxer, AKC, female, fawn w/white markings, 18 mos. old, \$75. 213-882-2880. C

Wedding Dress, traditional lace w/full trailing skirt, size 12-14, \$45. 213-370-0250. C

Lathe, Craftsman metal, 36" w/quick-change on hvy. duty stand, many extras, \$600. 213-865-5084. C

Boat, 15' fiberglass, 50 h.p. Merc., elec. start, tach, speedo, trailer, \$595. 213-421-7029. C

Motorcycle, 1968 Honda, 50 cc, cargo rack, \$100. 213-567-5814. C

Pup, Yorkshire terrier, male, 11 mos. old, has papers, \$125. 213-324-2837. C

Ham Radio, Heathkit, HW16 transceiver, w/ key, spkr., crystals, \$85. 714-522-4934. C

Bowling Ball, shoes, case, small size, \$15. 213-374-3691. C

Tent Trailer, 1969, w/zip-on-add-a-room, \$600. 213-672-5848. C

Miscellaneous For Sale

TV, Sears Silvertone, b&w console, 3 yrs. old, walnut cabinet, \$100. 213-644-5848. C

Winch for jeep, 12 V. 200' ¼" stainless steel cable, w/cable guide, \$75. 213-324-9404. C

Stereo, RCA portable, w/stand, \$25. 714-897-9407. C

Piano, Kohler-Campbell, French provincial, 3 yrs. old, \$500. 213-324-1811. C

Ski Sweater, man's, handmade, never worn, large, light yellow w/dark yellow, black, white stripes, \$45. 213-395-1833. C

Mobile Home, 8' x 44½' Travelo, alum. patio, awnings, new paint, will furnish, cpts., in Gardena, \$1,550. 213-321-9795, 213-329-7998. C

Apt, 4-bdrm., 3 baths, all elec., dps., cpts., patio, pool, 2-car gar., children welcome, play area, small dn., owner carry 2nd, \$31,900. 213-327-3160. C

Port-A-Crib, wooden, w/mattress, \$17.50. 213-376-4831. C

Acreage, 5 acres in Adelanto, utilities, \$750 dn., \$8,250. 213-378-1026. C

Motorcycle, Honda 160, \$275. 213-676-6904. C

Acreage, 20 acres, Elko County, Nev., water, \$100 dn., \$50 mo., \$5,000. 805-498-4216. C

Copier, Eastman Kodak, verifax Model A, \$30. 213-346-7829. C

Slide Trumpet, never used, by Deg Music productions, \$45. 213-833-3845. C

Trailer, 1963 Kenskill, 21', \$1,700. 213-677-9016. C

Desk, commercial, oak, 32"x60" typewriter well & 3 drwrs., \$45. 213-861-6404. C

Tape Deck, stereo, w/tapes & 2 spkrs., \$70. 714-842-5281. C

Bait Tank, 2 scoops, all fiberglassed, \$20. Box 502. C

Lawnmower, Sears 18" power reel-type, \$75. 213-377-7670. C

Encyclopedia, American People's 1968 edition & set of Book of Knowledge, never used, \$350. 213-644-1205. C

Cemetery Lots, Green Hills Memorial Pk., perpetual care, 4 Harbor View sec., \$300 ea., 4 Ocean View sec., \$565 ea. 213-326-3135. C

House, 2-bdrm., cpts., dps., newly decorated, assume 5¼% loan, No. Torrance area, R-3 zone, \$24,500. 213-329-9021. C

Horse, thoroughbred sorrel, gelding, \$250. 213-379-4781. C

Clothesline Poles, pr., hvy. duty, \$7. 213-328-3306. C

Boat, 14' alum. cartop-type w/7½ h.p. motor, \$200. 213-370-7268. C

Law Course, correspondence, complete La Salle California, \$325. 213-545-6719. C

Tires, 4 650 x 13, good retreads, \$35. 213-325-2292. C

Drum Set, 4-pc., w/floor cymbal & high hat, \$100. 213-939-3526. C

Swim Step, teak, 6½' long, 15" wide, \$75. 213-644-6164. C

Tape Player, cassette for car, for VW or Porsche Blaupunkt radio, \$50. 714-547-0411. C

Home, No. Downey, approx. 1,350 sq. ft., 3-bdrm., formal dining, 1½ bath, f/place, patio, new cpts., terms, \$31,500. 213-861-1529. C

Race Track, Aurora h.o. set, mounted on board, tracks, 4 controls, cars, spare parts & extras, \$15. 213-328-6662. C

Wanted to Buy

Fishing Boat 14' alum. w/or w/out trailer. 714-545-2035. D

Travel Trailer, 12' to 16'. 213-328-7048. D

Magazine, Popular Mechanics, Aug. 1964 issue. 805-495-9431. D

Bicycle, 5-spd. Schwinn Sting Ray. 213-377-2958. D

For Trade

VW Dirt Buggy, trailer, extra trans. axle, trade for car or motorcycle of equal value. 213-328-7824. E

Free (To Be Given Away)

Dog, mixed cocker, male, 2 yrs. old. 213-324-4558. F

Bird Cage, standing or can be hung, white. 213-672-4372. F

Pups, mixed cocker & shag, mostly white w/black. 213-835-0717. F

Rentals Offered

Condominium unit, in Mammoth Lakes, accommodates 4, living rm., f/place, complete kitchen, sep. bdrm., sauna, \$25 night for 2, \$30 night for 4. 213-375-2622. G

Cabin, A-frame, Camp Angelus, 2-bdrm., sleeps 10, \$30 day, \$120 wk. 213-644-7111. G

Cottage, Ocean Bch., San Diego, near Mission Bay, \$25 w/end, \$50 wk. 714-826-2007. G

Apt, 2-bdrm., 2 baths, living rm., kitchen, TV, maid service, Yucca Valley Country Club, \$25 day & up, 213-375-7265. G

Cabin, Big Bear Lake, \$30 w/end. 213-867-0662. G

Metal Detectors, Goldak Mod. 720, \$10 day, \$15 w/end, \$50 7-day wk. 213-674-8088. G

Cabins, Idylwild, 1 & 2 bdrms., stream, patio, f/place, \$30-\$35 w/end, \$70-\$90 wk. 213-868-8040. G

Chalet, 3-bdrm., 2 baths, completely furn., sleeps 10, Lake Arrowhead, boat & ski equip. avail. \$5 hr., \$150 wk., \$75 w/end. 714-528-2303. G

Apt, owner's, furn., family rm. w/fireplace, living rm., elec. kitchen, 3-bdrm., 2 baths, references, \$300 mo. 213-672-7227. G

Exec. Apt, 2-bdrm., 2½ baths, unfurn., Inglewood, \$225 mo. 213-670-6084, 213-672-7375. G

Old Hawthorne Hotel, Birthplace of Northrop, Gives Way to Progress

The real old-timers among Northrop personnel had many names for it—"The Yellow Peril," "Spider Haven," "The Sweat Shop," and others.

Regardless, the Hawthorne Hotel, founding place of Northrop Corporation, held many fond memories for them.

Now the hotel is no more. It has been demolished. In its place will grow a sparkling new commercial center, a part of the City of Hawthorne's redevelopment program.

Moving In

The hotel, on 126th Street just off Hawthorne Blvd., was old (some say it was built in 1912) when Northrop's founding fathers selected it for interim quarters. The first Northrop employees took up quarters there in early 1939. By the end of the year it served as administration, engineering, tooling and material center for Northrop.

Templates for Northrop's first production aircraft—the N3-PB—were made there. There also was a mockup of an early Northrop flying wing in one of the rooms. The first Northrop engineers there worked on sawhorse-supported board desks. And the first machines in use were put together by skilled craftsmen to serve in template making.

Moving Out

By the first months of 1940, portions of what is now the Aircraft Division's Plant One were completed and the exodus from the hotel began. It continued until about mid-1940 when all employees were relocated in the new facility.

Then the hotel reverted to its original use as a home for tourists and some permanent residents. Many Northrop employees,

reporting to work at the new plant in the hectic days of World War II found temporary quarters there.

Plans for the general area now call for a modern new shopping area, complete with air conditioned mall and extensive arrays of shops.

The Hawthorne Hotel has given way to progress, but it will continue to live in the memories of Northrop people for it was the birthplace of today's Northrop Corporation.

SAVINGS BONDS INTEREST UPPED

United States Savings Bonds, available to all Northrop employees through systematic weekly payroll deductions, now earn interest at a rate of five per cent. The old rate was 4.25 per cent.

The new 5 per cent rate applies to all outstanding Series E and H Bonds sold on or after June 1, 1969, if held to maturity. The higher rate also applies to older bonds.

That is, beginning with the first semi-annual interest period starting on or after June 1, 1969, rates on outstanding E and H Bonds will be increased to yield five per cent.

NORTHROP NEWS

Vol. 28

No. 5

Published biweekly by Corporate Public Relations and Advertising for the employees of Northrop Corporation.

Editor-in-Chief, Bryan Weickersheimer. Editors: Tony Cantafio, Electronics Division; Ivy Edmonds, Electro-Mechanical Division; Peter Toll, Ventura Division; Rosemary Hussey, Business Affairs.

Mailing address: Northrop News, 170/62, Northrop Corporation, 3901 West Broadway, Hawthorne, California 90250.

Rides and Riders

Rides Wanted

7 a.m. — 3:42 p.m.

Vicinity of Hwy. 39 & Fwys., Huntington Beach. Dan E. Jones, Aircraft ext. 2174, 714-847-2169.

7:30 a.m. — 4:12 p.m.

Centinela Ave. & La Brea Ave., Inglewood. Colleen Conner, Aircraft ext. 1972, 213-671-0657.

8 a.m. — 4:42 p.m.

Centinela Ave. & La Brea Ave., Inglewood. Colleen Conner, Aircraft ext. 1972, 213-671-0657.

Arnell & Los Posas Rd., Camarillo. Willing to meet ride or riders in Camarillo, Newbury Pk., or Thousand Oaks area. Connie Colella, Aircraft exts. 2521, 2522, 805-482-1816.

Colima-Whittier Blvd.-Leffingwell, Whittier. C. Rosenkranz, Aircraft ext. 1020, 213-696-3467.

Rides Offered

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Colima-Whittier Blvd.-Leffingwell, Whittier. C. Rosenkranz, Aircraft ext. 1020, 213-696-3467.

Personals

I wish to sincerely thank all my friends for the cards, gifts & retirement party. I really appreciate the cooperation & thoughtfulness of everyone I worked with through the years at Northrop. WAYNE GUILLES. L

For Sale or Trade

Pickup, 1966 ½-ton Chev. w/shell camper, \$1,350 or consider 4-whl. drive vehicle in trade. 213-644-2154. M

Reflector Telescope, 10" Newtonian, clock-drive & equatorial mounting, \$250 or trade for musical instruments, hobby or sports equipment of like value. 213-395-4801. M

Mini-Bike, custom blt., 6 h.p. 3-cycle, spare parts, \$150 or trade for running pickup truck of equal value. 714-826-9931. M



ROD & GUN AWARD WINNERS
Standing, from left, Harry Caseldine, Karl Stoy, Beth Hunsberger, and John Lawrence. Kneeling, from left, Ralph Beattie, Don Kohn and Earl Muehlenbach. (Photo by Earl Muehlenbach)

Gun Club Names Lawrence 'Sportsman of The Year'

John Lawrence received the Sportsman of the Year award to highlight the Ventura Division Rod & Gun Club's annual installation and awards dinner at the Chatsworth Club.

Mr. Lawrence accumulated the most points in each of the five categories, freshwater fishing, saltwater fishing, trap and skeet shooting, hunting and miscellaneous (club service) to win the top award.

The top hunter trophy went to Beth Hunsberger, Harry Caseldine was the outstanding shooter, Art Smith won the top freshwater fisherman prize and Karl Stoy was the best angler in saltwater.

Lowell Lyle received the most improved sportsman award for reflecting the greatest increase in points over the previous year and Ralph Beattie's outstanding saltwater catch of the year, a 13-lb. 4-oz. bonito, also won a Southwest Angling Club award.

Leading individuals in the team competition were newly-installed Commissioner Don Kohn for the losing team and Earl

Muehlenbach, for the winning team.

Hal Hunsberger's team, paced by Mr. Muehlenbach in trap and skeet, Art Smith in freshwater fishing and Mr. Stoy in saltwater fishing, topped the Vince Riley-captained team by 31,870 points to 24,682.

CLYMER—Busy Coordinator

(Continued from Page 1)

With the company nearly 20 years, Mr. Clymer brings a broad background to his job. He has worked in the Field Service branch and also was a supervisor in Production Control.

Eighty per cent of the suggestions come from the Manufacturing personnel, Mr. Clymer noted. "And the bulk of those come from the Boeing 747 operations. That is a new program with many opportunities for improvement."

Although less than half of all suggestions ever receive awards—they are rejected because they would be impractical to imple-

NRC Bridge Club Selects Peterson For Top Honors

Cal Peterson has been awarded the "Player of the Year" trophy in a special induction and awards program of the Ventura Division Bridge Club at the Villa Roma Restaurant in Thousand Oaks.

Receiving the honor for Individual Champion was J. O. (Doc) Powell and Most Improved Player was Carlene Pierce.

Winning the Team Of Four Championship was the quartet of Gary Carver, Paul Ewing, Ed Frangos and Jack Moeller. Hank Sperow and Carl Derossett were the Open Pairs champions while Leon Scrydloff and Bob Wondka received trophies for winning the Christmas tournament.

Installed as president was Terry Chin. The new vice president is Mr. Scrydloff, Tanet Palmer is secretary-treasurer and Bob Calhoun becomes director.

Duplicate bridge is played each noon hour in the Division's cafeteria. Persons interested in joining the ACBL-affiliated club should contact Mr. Chin at ext. 1009.

The Ventura Division Bridge Club is sponsored by the Recreation Club. Dues are 10 cents per week.

On The Job...



BOB LIVINGSTON, of 747 subassembly, is framed by the large final 747 assembly jig as he rubs down an intercostal which reinforces the wing fairing structure. Mr. Livingston has been with Northrop two years. (Photo by Gil Nunn)

Missing Magazine Leaves Clock Maker Out of Time

"A magazine, a magazine; my kingdom for a magazine."

Either that or something close to it is what John L. Simpson is muttering these days at the Ventura Division where he is a project representative in Quality Assurance.

The specific magazine he is yearning for is the August 1964 edition of "Popular Mechanics." And the reason he needs it has him both crying and laughing at the same time.

"I used to collect all of these magazines," Mr. Simpson explains. With his hobby of wood-working he found the magazines filled with patterns for small projects.

"Well, after a while, I got so many I figured it would be easier to just clip out the articles I thought I may use later and store them in three-ring binders," he went on.

One day he came across an interesting clock pattern. The all-

wood clock could be built in his home workshop in his spare time. So he started working on it.

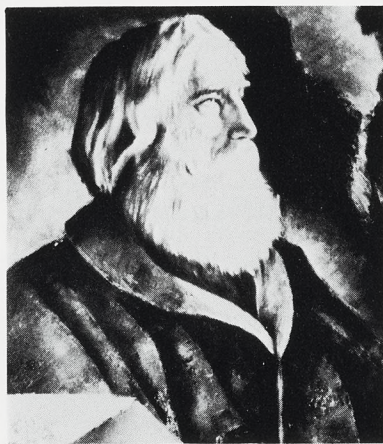
Starting with the first of three pages in the article he figured his needs and decided to build the clock of walnut wood. He is now three pages and 150-200 hours into the job.

Except for one slight problem. At the end of the third page it says, "Continued on Page 180." He has built the entire clock except for the most important parts—the timing and escapement mechanism.

And the plans for those are on Page 180, a page he forgot to clip out. Mr. Simpson has a beautiful clock that is seven inches wide and 18 inches high. But it doesn't work.

"I'll buy the magazine or copy the page or what ever," he says, because without Page 180 he's stuck. He urges anyone with a copy of the magazine to call him at ext. 1270.

Ventura Artists Will Display Their Talents



ARTIST SHOW PLANNED

Ventura Division artists and photographers, members of the Arts and Graphics branch, will display their work in an art show March 30-April 1.

The 30-minute presentation will be displayed via 35 mm color slides on three screens simultaneously from 11:15 a.m. to 1 p.m. in the Administration Building assembly room.

Art work will represent various forms of media: oil, watercolor, casein, pastel chalk, charcoal, ceramic, photography and ink. Works will include landscapes, seascapes, abstracts, portraits, architectural still life and life class drawings.

Artists represented include Doug Finch, Jack Calder, Julian Ralph, Colleen Pearson, Mac Pakula, Mort Miller, Bill Casey, Carol Thomas, Gil Nunn, Jim Woods and Bob Thornton. Arts and Graphics Chief Curly Martin is coordinating the show.



NORTHROP NEWS

VENTURA DIVISION EDITION

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Astronaut Inducts Nine Into Select Snoopy Club

Nine Ventura personnel and two former employees were inducted into the select Snoopy Club by NASA Astronaut Dr. Joe Allen in ceremonies at the Ventura Division.

Receiving Snoopy pins, which represent the highest honor the astronauts bestow upon individuals who have done outstanding work in the Apollo Program, were:

John M. Bross, Quality Control; William E. Dierker, Apollo Scheduling; Stephen D. Downey, Contracts; William L. Downs,

Recovery Systems Project office; Theo Knacke, Space Systems Marketing; Barbara Fitzpatrick Loane, Quality Control; Alvin H. Martin, Quality Assurance; Tom Smalley, Arts and Graphics; and Ted A. Szostek, Paradyamics Laboratory. Also, former employees John A. Wells and Richard Colvin.

Each of the new Snoopy Club members also received a personal letter praising their efforts signed by Astronaut Al Bean. Astronaut Bean walked on the moon with Apollo 12 Command Pilot

Charles (Pete) Conrad late last year.

Astronaut Allen, who gave out the pins and letters, is one of the scientist-astronauts selected by NASA in 1967 (his doctorate is in physics), said he expects to be spaceborne by 1972.

Accompanying him from North American Rockwell's Space Division in Downey were John Mihelich, NAR director of Materiel Management; James Fraser, NAR subcontract administrator for Apollo; and Charles Page, NASA's Apollo representative at NAR in Downey.

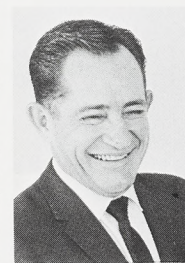
First member of the team which has built the Earth Landing System for Apollo and all other manned U.S. spacecraft landing systems to be honored was Mr. Bross.

"As senior Quality Assurance planner," his letter from Astronaut Bean said in part, "your diligence in reviewing manufacturing orders, purchase orders and the planning of critical inspection points" has helped result in a landing system of "highest attainable quality."

Mr. Bross' role in Apollo included planning and configuration along with data package control. Now in Quality Engineering on several projects, Mr. Bross has been at Ventura since 1957 and with Northrop for 19 years.

manager and contracts administrator for Apollo. He is also a 15-year Northrop employee.

His letter lauded his work which "contributed significantly to the attainment of schedule and cost objectives." The letter added, "It is through individual efforts of men like yourself that the manned space program has reached unprecedented heights of achievement."



Mr. Downey



Mr. Knacke

Bill Downs is another Apollo man who knows the landing system inside and out. As chief packer and rigger of the parachute system, his work took him to White Sands, N.M., Edwards AFB, El Centro and Cape Kennedy. He has been with Northrop 10 years.

Praising Mr. Downs' "high standards of professionalism and record of personal achievement," the letter lauded his work as "the bridge between design and production" and the implementation of efforts in "a significant step toward final production techniques."

"It is a personal pleasure to be a part of the same Apollo team with such an eminent scientist and technologist in the field of deceleration systems as yourself," said the letter to Theo Knacke. It lauded Mr. Knacke's "professional acumen and sincere personal dedication."

Mr. Knacke, a key figure in



Mrs. Loane



Mr. Martin

deceleration systems since 1935, was recently named Space Systems representative in the Marketing department. With the Ventura Division since 1962, Mr. Knacke has been a research, development and test consultant in the Mercury, Gemini and Apollo Programs.

Barbara Fitzpatrick Loane was one of the people who inspected the 10 million stitches that went into each Apollo system. An inspector in Quality Control, she is married to Marsh Loane of the Field Engineering and Training branch at Ventura.

Her letter from Astronaut Bean commended her "thoroughness in inspecting parachute hardware" and noted that work such as hers produces hardware "exceeding program requirements."

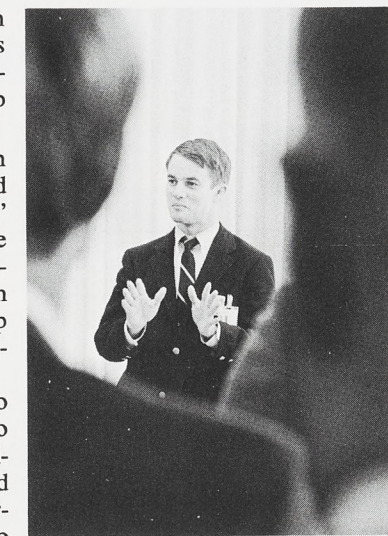
Quality Assurance program

leader for Apollo was Al Martin. A 10-year Ventura employee, Mr. Martin now holds a similar job on the MQM-74 program.

"You have provided exceptional program liaison and supervision," Mr. Martin's letter said. It praised his dedication and "willingness to work beyond what was required."

Tom Smalley has been Ventura's cinematographer for the past four years. He provided motion picture documentation for Apollo test drops at El Centro and at the Ventura facility. He also produced the award-winning film, "The Last Five Miles Home" which describes Ventura's involvement in Apollo.

Astronaut Bean praised Mr. Smalley's efforts. "We know you had the major hand in the selection and cutting of this film which has served to get the message across as no other medium has," the letter said.



ASTRONAUT Dr. Joe Allen, a 32-year-old physicist, discussed his role in the space program for Ventura Division Snoopy pin recipients. (Photo by Robert Thornton)

General foreman of the Parolab, Ted Szostek, has been involved in space landing systems since he transferred from the former Radioplane facility in El Paso, Texas. Mr. Szostek is a 14-year Northrop employee.

Maintaining high quality and reliability while meeting schedule and cost commitments exemplified the way Mr. Szostek has "made quality workmanship a meaningful principle" in the Parolab, his letter said.

John A. Wells was lauded for his work on the pyrotechnic devices and reefing line cutters and Dick Colvin was praised for his efforts in testing and inspecting the cutters. Both men were present for the ceremonies with Astronaut Allen although they are no longer employed at Ventura.



Mr. Smalley

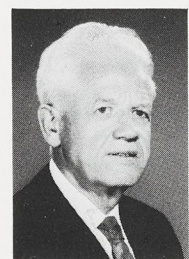
Mr. Szostek



BILL DOWNS shakes Astronaut Allen's hand and receives personal congratulations, as did other recipients. Watching in background are, from left, recipient Tom Smalley, Aerospace Landing Systems Program Manager W. A. Steyer and North American Rockwell's John Mihelich.

Management Club Will Hear Dr. Raymond Olson

Dr. Raymond M. Olson, president of California Lutheran College in Thousand Oaks, will be the featured speaker at the April 15 meeting of the Ventura Division Management Club.



Dr. Olson

A graduate of Augustana (S. D.) College and Luther Theological Seminary, Dr. Olson was a parish pastor and officer of the National Lutheran Church organization before coming to Thou-

sand Oaks. He is a past-president of the National Lutheran Council.

Dr. Olson will discuss the goals and growth of the college and its inter-relationship with the Conejo Valley community, business and industry.

The Wednesday evening combination steak and seafood dinner at 6:30 p.m. in the Sunset Hills Country Club, Thousand Oaks, will be preceded by a social hour beginning at 5 p.m. Guests are welcome. Cost is \$7.

Reservations may be made through D. J. Manley in the Administration Bldg., ext. 523; Maria McFarland in the Engineering Bldg., ext. 1203; and Maybert Kennedy in Manufacturing, ext. 281.

AUTOCLAVE IDEA BRINGS AWARD

If it takes too much to move parts in and out of the autoclave, then let's think of a better way.

That's precisely what James Kearney of the Plumbing subunit did. And his removable runway idea for the autoclave earned him a \$212 Suggestion Award, largest in the latest list of Ventura Division suggestion money recipients.

Norris H. Drewery, who works in the same unit with Mr. Kearney, came up with another cost-saver on the autoclave—re-using

a spark plug on the aerotherm. And he earned \$51.

Charles Stokes of 747 Final Assembly got \$35 for a cost-cutting idea in that area and Jerry Small, working right next door in Lower 44 Structure Assembly, received \$32.

Frank Becerra was next with a \$26 award, Don Trout earned \$12, Margaret Myers, \$11, and Frank Balaszi, David Coe, H. D. Spink and Mat Newcomb received \$10 apiece for their ideas.



Mr. Bross

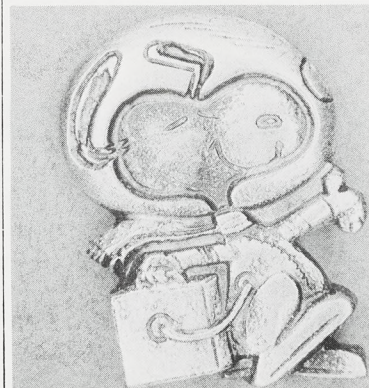


Mr. Dierker

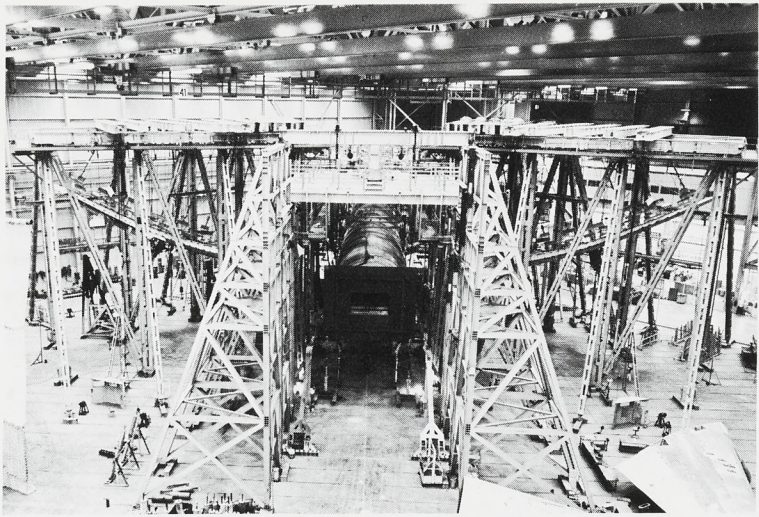
As a coordinator and scheduler, Bill Dierker spent many days at the Cape Kennedy Space Center as Manufacturing representative for final packing of the Apollo landing system. He has been with the company 15 years.

His letter said, in part, "you have consistently displayed personal interest and dedication" and on "numerous occasions taken independent action to eliminate schedule delays."

Steve Downey, now program administrator for the Boeing 747 Program, was deputy program



COVETED award is a cavorting Charles Schulz cartoon character with space helmet and portable life support system. Handsome pin can be worn in lapel or as a tie clip.



SUPERJET WINGS FLEXED TO EXTREMES
"Torture tests" systematically destroyed a complete 747 wing.

'Torture Tests' on 747 Wing Exceed Load Limits

How much can the wing of a huge Boeing 747 be bent before it breaks? The answer is approximately 29 feet at the tips.

The results of the year-long "torture tests" may mean increased range and payload capabilities for the jumbo jet.

Boeing engineers at Everett, Wash. systematically destroyed a structurally complete airplane wing. Resulting airframe stresses

were 116 per cent of ultimate design load and 174 per cent of the limit load or maximum load for the 710,000-pound 747 in airline operations.

"The demonstrated extra strength of the 747 wing design means future operators can fly the airplane at greater gross weights in commercial service," said James Hoy, Boeing 747 structure technology manager.

The wings were attached to the Northrop-built wing fairings and Set 44 of the fuselage — neither of which were subject to structural stress in the tests. Only the wings themselves were involved.

Like a piece of bamboo, the wings were flexed upward 29 feet before breaking. Engineers used a hydraulic system to apply loads of up to 1.35 million pounds before the test was terminated.

The test involved one of two complete 747 airframes which Boeing will destroy. A second 747 is undergoing fatigue testing in a program designed to simulate 20 years of airline service.

Bill Wallace Saves Trading Stamps to Buy School Bus

Many Northrop employees set out to save trading stamps for specific purposes, but few can boast of a more ambitious goal than that of Bill Wallace—he wants to buy a full-sized school bus.

Mr. Wallace, an Aircraft Division tool crib attendant, is serious about it all and strictly unselfish in his motives.

The bus he wants to buy isn't for his personal use, but will be utilized to transport underprivileged children to and from school.

As chairman of the Compton Community Youth Center Head Start Program, Mr. Wallace has made arrangements to redeem the stamps for cash.

"Our organization needs a bus in the worst way," said Mr. Wallace. "Right now we rely upon only one bus to transport more than 200 children to 14 different schools in southern Los Angeles.

Making Do

"Fortunately, we have some very dedicated teachers and volunteers who are using their own automobiles to fill in for the bus. But this can only be a temporary solution because of inadequate insurance coverage."

Head Start was formed to break the cycle of poverty before it has a negative effect upon a young child's life. It has five major components: health, nutrition, education, parent involvement and social and psychological services.

Mr. Wallace has been involved in Head Start for the past two years. "Since that time," he said, "I've seen hope, motivation, self-identity and respect enter into the lives of hundreds of children and their parents. It is really a worthwhile program."

Northrop employees who feel they can assist Mr. Wallace in his effort to collect trading stamps can contact him at 672-5200.

Annual U. S. Savings Bond Drive Is Scheduled to Begin Next Month

Plans are now being formulated for Northrop's annual U.S. Savings Bonds program which will take place next month.

Northrop President Thomas V. Jones has assured industry and U.S. Treasury Department officials that Northrop personnel will continue to support the Bonds program. In 1969 Northrop ranked 10th nationally among major companies participating.

Coordinating with Mr. Jones are E. Clinton Towl, chairman of the board of the Grumman Aerospace Corporation and chairman of the program's aerospace industry division and John G. Brooks, chairman of the board and president of Lear-Siegler, Inc., chairman of the Los Angeles program effort.

Richard Horner Appointed to New Commission

Vice President Spiro T. Agnew has announced the appointment of Richard E. Horner, Northrop senior vice president, Technical, to the U.S. Commission on Government Procurement.

The commission is charged with studying and investigating present statutes affecting government procurement. It's to present its findings and recommendations to Congress in November 1971.

Other members of the commission include Senators Henry M. Jackson and Edward J. Gurney, Congressmen Chet Holifield and Frank Horton, Joseph Barr, Jr., president of American Security and Trust Co., and Comptroller General Elmer B. Staats.

Mr. Horner will continue in his present capacity at Northrop while serving on the commission.

Northrop personnel brought the 1969 level of participation to 87 per cent and tied with Kaiser Aluminum and Chemical Corp., Kennecott Copper Corp. and Pacific Telephone and Telegraph Co.

Coordinating the program at the division and related levels will be:

Aircraft Division, John Richardson; Electronics Division, Harry Clark; Ventura Division,

Tom Tapper; Electro-Mechanical Division, Harry Belcher; Northrop Architectural Systems, Dale Albee.

Also, Northrop Data Processing, William Hayman; Northrop Corporate Laboratories, Deane Haddon; Corporate offices, Sandra Tapper; Graphics, Harold Pershing.

Over-all coordinator for the total program will be M. E. (Red) Beyrodt of the Corporate office.

James D. Willson Named Senior Vice President

The Northrop Corporation board of directors has elected James D. Willson senior vice president, Finance, Thomas V. Jones, Northrop president, has announced.



Mr. Willson

Mr. Willson, 54, has been vice president of Finance since January 1966. He is a director of Northrop and the company's chief financial officer. Mr. Willson was previously vice president for Finance of Tidewater Oil Company.

He is co-author of two financial textbooks, "Controllanship" and "Business Budgeting and Control," and has published a number of articles in financial journals and other periodicals. His article, "The Accountant's Contribution to Labor Relations," won the Lybrand Gold Medal for the outstanding contribution to industrial accounting literature in 1958-1959.

Mr. Willson is a director of

Arden-Mayfair, Inc., and is a member of the American Institute of Certified Public Accountants, the Financial Executive Institute, and National Association of Accountants.

He holds B.S. and M.B.A. degrees from Ohio State University and served in the United States Navy during World War II.

Pepperdine Will Continue On-Site College Courses

Courses in business administration with emphasis on government contract management now being conducted on Northrop facilities by Pepperdine College will be continued next trimester, according to Bob Asbell, coordinator of the program for the college.

The classes are part of an accredited undergraduate bachelor of science program with emphasis on contract management. All work off campus at the Northrop facility will be credited toward degrees, Mr. Asbell said.

"The courses are strictly upper division," Mr. Asbell said. "Prospective students should have an associate of arts degree or two years of lower division college work. These are not beginner's courses, although we will be delighted to assist beginners in joining other classes that are available."

What's Needed

The courses emphasizing contract management are the result of a survey conducted by the college with Northrop's assistance. The survey was designed to determine what was needed in the way of formal education in the contract management field.

Two classes have been completed and a new one will begin April 28. Applicants should contact Mr. Asbell at Pepperdine, phone 752-4022 or 752-4024 or Marshall Thompson in the Aircraft Division's Professional Training office for information on enrolling.

The classes are conducted on the unique trimester plan. This allows students to do a regular semester's work (18 weeks) in 16 weeks. Students wishing to attend full time may complete a full four-year curriculum for a bachelor's degree in two years and eight months.

Two new courses will begin April 28 in the second floor conference room of the Northrop Corporate Laboratories Building in Hawthorne. Business statistics will be offered from 4:25 to 7 p.m. and principles of accounting from 7:10 to 9:45 p.m.



A TWA BOEING 747 IS BIG FROM ANY ANGLE
Northrop executive John McCoy says it will spoil air travelers.

'ONLY WAY TO FLY'

McCoy Describes Superjet Flight

Like everyone else who has flown on the Boeing 747, John L. McCoy was impressed by its overwhelming size; not just as a passenger, but as head of the Northrop team who contributed to the superjet's presence.

The vice president and manager of Northrop's 747 Program, along with F. W. Lloyd, corporate vice president and Aircraft Division general manager, Jim Willson, corporate senior vice president, and Paul Jacobs, vice presi-

dent, Military Aircraft and Support Operations, was aboard TWA's third 747 flight.

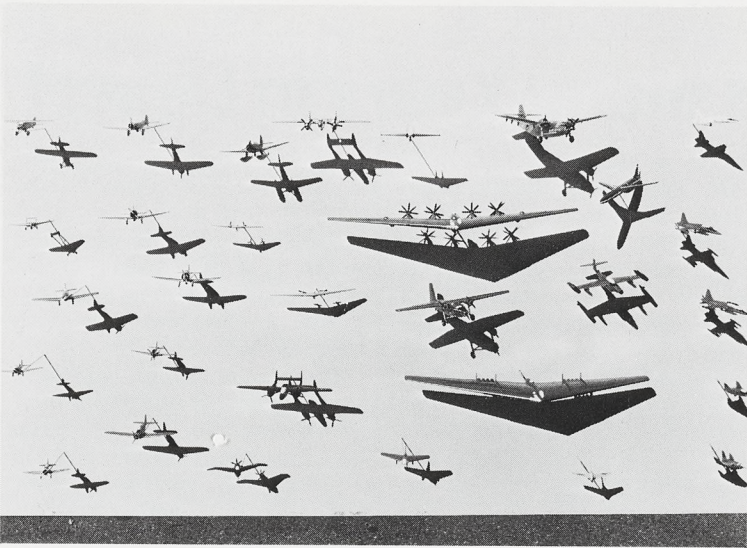
"It's like a happy ship," said Mr. McCoy, in describing the 747 in commercial service. "Once we gained altitude and the seat-belt sign went off, just about every passenger aboard got up at the same time to inspect the airplane."

Mr. McCoy attributed the increased passenger activity to the 747's aura of roominess and lack

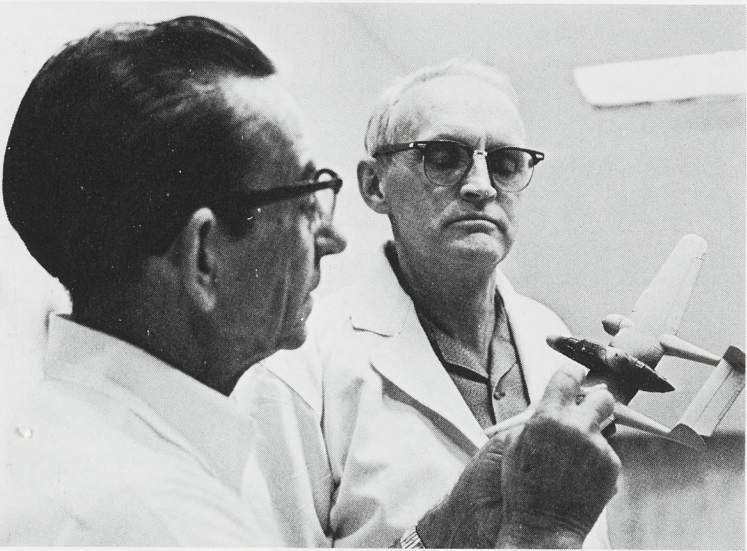
of constraint, which is sometimes felt on smaller planes.

"You have a much better sense of confidence flying in the 747," he said. "The noise level is very low, conversation is easy and very seldom do you feel any movement of the airplane because of air turbulence."

Mr. McCoy said that he feels certain the advent of the 747 will spoil air travelers. "As for myself," he added, "it's the only way to fly."



MODELS OF NORTHROP historical aircraft cast long shadows across the new display board in the Aircraft Division cafeteria, above. Below, Newt Cook and Fay Eggleston check precise dimensions on a model of the Northrop P-61 Black Widow night fighter before it is added to the display.



Historical Aircraft Display Set

The story of Northrop airplanes has been depicted in an historical display built by the Aircraft Division's Aerosciences Shop.

Thirty-two models, all built to 1/72nd scale, are included. The finished display will be on exhibit in the main cafeteria during April, after which it will be moved to a permanent location in the Engineering and Science Center at Hawthorne.

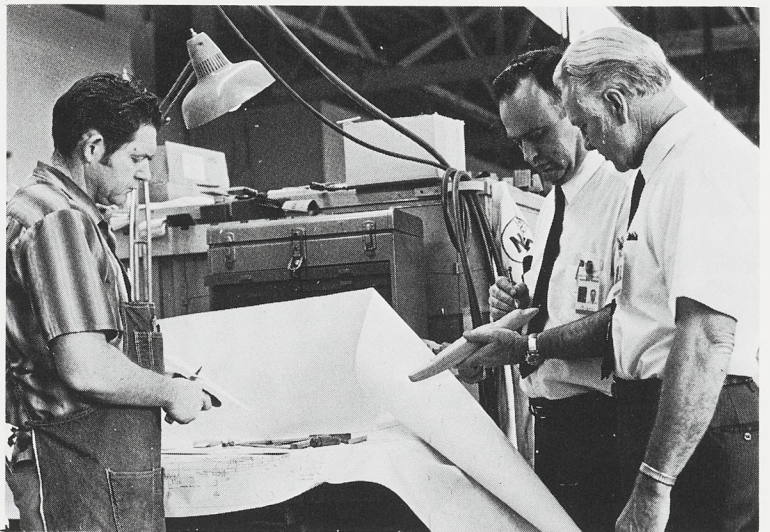
The display contains models of all the aircraft built by the Northrop Corporation from its first—the N-3PB seaplane—to the current F-5 Freedom fighter. Also, included are some of the aircraft designed by John K. Northrop prior to the establishment of the present company, such as a model of the 1929 Flying Wing.

The exacting detail work on the models was performed by Fay Eggleston, Newt Cook, Victor Bladel and Robert McMillan. Charles Sexton was supervisor and Wally Henrich was foreman.

One of the major tasks was researching exact details of the aircraft, the oldest of which was built 41 years ago. A research staff composed of Mr. Henrich, Gus Morfis, Ralph Carlstrand, Lynn Christensen, Jerry Huben and Dave Bean combed old Northrop records, blueprints, publications, old magazines and books. For some details on the older aircraft, they had to interview old-timers who worked on them.



SNARK MODEL, depicting nation's first intercontinental ballistic missile, is finished by Fay Eggleston, left above, and Bob McMillan. Each model was carefully researched to insure perfect scale. Below, Chuck Sexton, Wally Henrich and Vic Bladel go over plans for the models before work progresses on the display. Photos by David Saldana.



NORTHROP NEWSMAKERS

Dr. Herman W. von Guerard, Ventura, will present a paper on "Drone Reliability Analysis" at the Western Section meeting of the Operations Research Society of America in San Diego on March 20.

John H. Wells, Ventura, has been installed as vice president of the Conejo Valley Shrine Club. He is also president of the Ventura Division Management Club.

Stephen Miles, son of **Michael Miles**, Aircraft Division, has been selected altar boy of the year at Nativity Catholic Church, Torrance. Stephen is a first year seminarian at Queen of Angels Seminary, San Fernando Valley.

Richard T. Warner, Ventura, is a candidate for City Council in Hidden Hills, a residential community in the West San Fernando Valley.

Jo Ann Semones, daughter of **George Semones**, Ventura, is a candidate in the upcoming San Fernando City Council election.

James E. Berry, Aircraft Division, is among candidates in the April 14 election to name Lawndale City Council members.

George Gore, Corporate offices, has been elected vice president of the national Manufacturers Aircraft Association, an organization that administers patent cross-license agreements for the aerospace industry in the U.S.

Nils Johnson, Electronics Division, has been appointed to the executive council of the Centinela Valley YMCA Hawthorne district committee.

SILVER BEAVER FOR R. A. CARLSON

Richard A. Carlson, Northrop Data Processing, has been presented the Silver Beaver award by the North Orange County Council, Boy Scouts of America.

The honor goes to select adults who have contributed their services as adult Scout leaders.

Mr. Carlson is scoutmaster of Troop 200, sponsored by the Fullerton Elks Lodge. He also serves as a member of the Council Executive Board and chairman of the Council Camping Program committee.

Mr. Carlson has been active in Scouting for 37 years in addition to volunteer work in school, community, church and veterans' organizations. His three sons, all Eagle Scouts, currently serve in Troop 200.

New Tax Penalty Could Be Rough

Northrop employees are reminded that the Federal Income Tax Reform Act of 1969 imposes a penalty on the tax shown on any income tax return unless the tax is paid by April 15.

The new penalty for failure to pay tax when due is computed at the rate of 1/2 per cent per month (or part thereof) with a ceiling of 25 per cent of the amount subject to the penalty.

No penalty is imposed if the failure to pay the tax is due to "reasonable cause."

This penalty is not deductible for federal income tax purposes. It is in addition to the regular six per cent interest (which is fully deductible) charged on overdue taxes.

In addition, the special 10 per cent credit against California 1969 income taxes is available only if the entire tax is paid on or before the due date.

IN 'THE MEDIUM'

Master Scheduler Appears in Opera

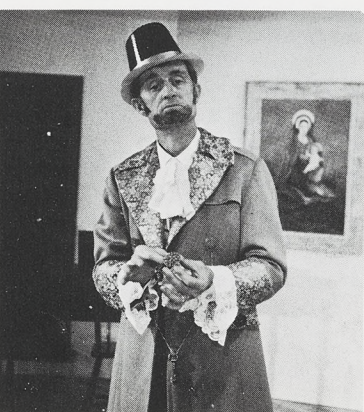
Gene Rague, master scheduler in the Navigation department, has been cast in a supporting role in Gian-Carlo Menotti's opera, "The Medium."

The two-act musical drama will open the evening of April 11, at the Linwood E. Howe Elementary School Auditorium, 4100 Irving Place, Culver City, and run for three consecutive weekends. Admission is \$2.

Mr. Rague, who has been singing and acting professionally since he was eight years old, plays the part of a man who believes he can communicate with his dead son.

"The drama thickens when the

medium I visit has her tricks of the trade come to life through hallucinations and alcohol," Mr.



Gene Rague

New Freedom Foundation Honors to Cynthia Cherbak

Cynthia Cherbak, daughter of Victor A. Cherbak, Jr. of the Corporate office, will receive her second Freedom Foundation Award at Friday's meeting of the Aircraft Division Management Club.



Miss Cherbak and \$100 for her talk "Business And Industry—Do You Need A Press Agent?" delivered a year ago to the same Management Club.

The first honor plaque followed an address at the Los Angeles Rotary Club in 1968. Miss Cherbak, 20, is a sophomore at Stanford University.

Miss Cherbak's Management Club speech dealt with campus unrest and the inability of businessmen to relate to young people. Her experience in Junior Achievement, she said, made her aware of business and industry problems.

Miss Cherbak took impressive credentials into college. She was student body president at Hawthorne High School and president of the Drama Club. Voted "most likely to succeed" by her classmates, she was also named one of the school's "Outstanding Teenagers of America."

At Stanford she is president of an international economics club, vice president of the Film Workshop and a member of the University Chorus. She is majoring in economics and communications.

Miss Cherbak has addressed many management clubs, civic groups and service clubs delivering her message on the American free enterprise system.

GET DISNEYLAND TICKETS EARLY

Tickets went on sale today at all Northrop outlets in the Southland for Northrop Night at Disneyland, set for May 23.

The price is \$3.95 per ticket and includes parking, plus unlimited use of all Disneyland facilities, except shooting galleries, between 8:30 p.m. and 1:30 a.m.

Ticket outlets will offer ducats on a first-come, first-served basis until the available supply is exhausted.

**IS IT NEWS?
CALL EXT. 4273
HAWTHORNE**



AN ARTIST RECALLS HIS GRANDMOTHER
Bob Peck sketches Tatzumbie Dupea from his memories.

Life of Oldest Californian Inspired All Who Knew Her

"She was an inspiration to all who knew her—they ranged from presidents and governors to movie stars and everyday people," said Northrop's Bob Peck in speaking of Tatzumbie Dupea, California's most famous woman, who died recently at the age of 120.

At the time of her death Tatzumbie—the name means "Beautiful Star" in her native Paiute Indian language—was acknowledged to be the oldest living Californian, the oldest mother, and the oldest motion picture actress.

Bob first met the famous woman during the early days of World War II. He was then a sailor stationed at Long Beach. He was hitchhiking into Los Angeles when Tatzumbie—then only 91, gave him a lift.

She was on the way, along with her granddaughter, to the premiere in Los Angeles of a picture she appeared in. She invited Bob to go along. After the show—because her granddaughter liked his looks, she invited him to her home.

Thus began a romance that ended with Bob becoming Tat-

zumbie's new grandson.

"Beautiful Star's" birthdate of July 26, 1849—the year of the Gold Rush—was verified from records of the Bureau of Indian Affairs by the California Bi-centennial Commission which was seeking the oldest living Californian.

She came to Los Angeles when it was a collection of adobe huts in 1870.

In time her classic Indian features brought her parts in Hollywood movies. She appeared in 40 pictures in all.

"After she passed the age of 100, reporters came every year to ask her the secret of her long life," Bob recalled. "She liked to tease them. Sometimes she would say it was from drinking the juice of pink beans and at other times she would confidentially reveal that fried bananas was the secret.

"Then she would turn serious, informing them that the real secret of growing old gracefully is to enjoy people, don't worry, and love mankind. And I know from first-hand that she followed her own advice," he said.

When Louis R. (Louie) Weltz went to work for John K. Northrop in 1934 as a mechanic he didn't know that more than 25 subsequent years of his Northrop career would be spent in the desert.

Before going to work for Northrop, he spent four and a half years working for Transcontinental Air Transport, Inc., starting after high school in 1929.

Mr. Northrop's fledgling company produced the Alpha, Beta and Gamma series of airplanes and then was purchased by Douglas Aviation (now McDonnell-Douglas). "I stayed with Douglas until Mr. Northrop started his own company again in 1939 at which time I went to work in March of 1940," Mr. Weltz recalls.

He worked with men such as Mr. Northrop, Robert Catlin, Gage Irving, Tommy Thompson and Tom Rubel ("my boss"), on the N-1-M or small flying wing prototype at Hawthorne. Plant One was under construction at that time.

"On my birthday, June 9, 1940, we trucked the N-1-M to the desert at Muroc Dry Lake for tests. We taxied it several months before getting airborne, hauling it back and forth to Hawthorne by truck for structural and engine changes.

"There weren't any buildings up there then. And we worked in freezing temperatures during the winter and in the summer it got up to 120 degrees," he said.

Fifteen months later his first experience in the area later to be known as Edwards AFB was over. He returned to Hawthorne to enter the production line on the N-3PB and P-61 "Black Widow".

After a five-year stay at Hawthorne, Mr. Weltz went back to the desert in September 1945 when the P-61 Black Widow line closed down at the end of the war. In those days it was a skele-

ton crew at Muroc Dry Lake.

Mr. Weltz was the foreman, Marvin Albright was his inspector and Bill Raikes and Jake Superata were the mechanics. "It was just us four, although Dick Hanna soon replaced Mr. Albright." The Edwards team grew as Northrop began building more airplanes. "At one point, when we were testing the B-35 and B-49's I had 180 people under me," Mr. Weltz said.

Chronologically, the 30-year man worked on the N-1-M, N-3PB, A-31, N-9, B-35, B-49, RB-49, X-4, F-89 series (for 10 years), T-38 and RB-66 Laminar Flow and, finally, the F-5 series. In between and along with these testing programs, there were various other small tests of all kinds.

In 1947, after commuting home on weekends from the desert, Mr. Weltz decided to move his family to Lancaster.

"I like the desert," Mr. Weltz said. "You're on your own out here. For a long time there were no real problems we couldn't handle on our own or by calling an engineer at the home plant. There weren't any

people you didn't know and personal communication couldn't be beat."

His wife and family were with him at a surprise party in his honor attended by more than 200 persons at the Palmdale Elks Lodge on March 14.

"There were people who have gone through this thing with me," Mr. Weltz told the Northrop News, "people I hadn't seen in 20 years. They came from Hawthorne, Ventura, and many former co-workers now with other companies. It was an occasion we will never forget."

Mr. Weltz and his wife were given an all-expenses paid trip to Lake Tahoe for a week, a plaque listing the projects he had worked on, a set of mounted Northrop airplane models. "It was very, very moving," Mr. Weltz said.

Thursday, March 19 marked his 30 years with the company and the next day was his last as he entered retirement. His retirement plans are not definite. "We're very close to our sons. If they settle here then we'll stay here. We want to be together, stay in close contact, if possible."



THE LOUIS R. WELTZ FAMILY
From left, Norman, Louis, Mike, Barbara and Tim Weltz.

WE ASKED THEM—How Do You Feel About The Custom of Tipping?



Norman Young, drone structural assembler, Ventura:

In certain places, yes. If you have good service, yes. If the service isn't worth the tip, then I don't give it.

Paul Thompson, shipping inspector, Electronics:

I usually leave a tip all the time, mainly because it is a custom. However, the size of the tip depends upon the quality of the service.

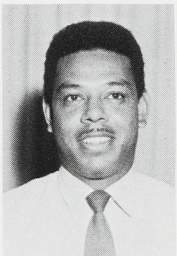


Shirley Lewis, secretary, Electro-Mechanical:

It must be great if you are on the receiving end. Otherwise, I think it is getting out of hand. It should be voluntary, not demanded.

Gordon Barber, crew chief, Aircraft:

Basically the custom is okay. I know that a lot of people have to depend upon tips to augment low salaries. To me, good service means a good tip; poor service means a small tip. There is really little we can do about it, it's a way of life everywhere now.



John Espinoza, foreman, Electronics:

I feel it is a good custom because it keeps the quality of service at a high level. Good service is the key to my generosity.



Steve Winter, F-5 Pylon, Electro-Mechanical:

Tipping is fine if the service deserves it. But not just for doing a job.

Linda Barnes, receptionist, NCL:

Tipping should be based on service only. A lot of people tend to tip a waitress or waiter on the quality of the food rather than the service.



Helen Palenko, plastic laminator, Ventura:

If the service is good then the people get tipped. But I don't tip just to tip—only if someone gives me good service.



Bob Catlin

the return of his screwdriver. They always countered with a promise of "finding it."

Last week a retiring Louis Weltz called on Mr. Catlin and returned the screwdriver, still in good working order.

'Missing' Tool Home At Last

In the infancy of Northrop Corporation, when tools were as scarce as individual craftsmanship was abundant, "community" toolboxes were common. They contained both company and personal tools and were used by all.

Twenty-eight years ago the Aircraft Division's Bob Catlin contributed a fine ratchet screwdriver to the "community" box at what is now Edwards AFB.

Through the years this tool became a standing joke. When Mr. Catlin encountered old timers from the base, he demanded



Classified

Classified ad service is provided free of charge to all Northrop personnel. Ads for agencies, commercial enterprises and private businesses are not accepted. The Northrop News reserves the right to edit or omit ads. Obtain ad form C67 from organization clerk and mail ad to Northrop News, 170, zone 62. Ads are limited to one item and one ad per person each issue. Deadline is noon Wednesday, one week before publication.

Automobiles For Sale	
Jeep, 1960 CJ-5, 4-whl. dr., extras, \$1,300. 213-830-1365.	A
Pontiac, 1966 LeMans, V-8, 4-bbl., headers, posit., 4-spd. Hurst, American mags, p/s, spkrs. for tape deck, eng. rebilt. throughout, \$1,200. 805-482-9635.	A
Volkswagen, 1964, \$895. 213-340-2106.	A
GTO, 1967, new wide oval fiberglass tires, new shocks & parts, \$1,600. 213-545-3948, 7 p.m.	A
Oldsmobile, 1960 convt., \$175. 213-752-5277.	
Station Wagon, 1966 Ford, c/s, mod. 76, 390, a/c, full pwr., 34,000 mi., \$1,650. 213-378-4959.	A
Pontiac, 1968 Firebird, all power, fact. air, \$2,400. 213-375-1916.	A
Station Wagon, 1964 Chevrolet Impala, V-8, stick shift, r/h, \$500. 213-675-7626.	A
Station Wagon, 1965 Falcon Squire, a/c, radio, lug. rack, p/s, auto. trans., 289 V-8, \$950. 213-324-5709.	A
Cougar, 1967, a/c, take over \$84.14 mo. pymts., \$2,400. 213-675-4597.	A
Pontiac, 1967 Bonneville, all power, a/c, \$1,995. 213-372-8903.	A
Station Wagon, 1955 Chevrolet, \$175. 213-638-0194.	A
Mustang, 1965, V-8, d/brakes, p/s, r/h, \$1,000. 213-645-7061.	A
Fiat, 1969 124 sport Spider, 5-spd., r/h, \$2,950. 213-391-1021.	A9
MGT roadster, 1969, r/h, wire whls., d/brakes, 7,000 mi., \$2,200. 213-322-2616.	A
Dart, 1964, 2-dr., 225 cu. in. slant-6, 3-spd. auto., r/h, \$635. 213-421-7029.	A
Pickup Truck, 1967 GMC, V-6, 1/2-ton, hvy. duty, western-type mirrors, MK. IV air, std. 3-spd., \$1,850. 213-372-1582.	A
Cougar, 1967 coupe, p/s, radio, \$1,995. 213-670-8453.	A
Buick, 1968 Special, 4-dr. sedan, factory warranty, \$2,200. 213-374-9944.	A
Volkswagen, 1962, 10,000 mi. on 1500 c.c. eng., \$750. 213-372-7329.	A
Rambler, 1964, Classic 6, 4-dr., \$375. 213-833-5594.	A
Corvette, 1963 Stingray, Powerglide trans., 327 cu. in. 300 h.p., p/s, AM-FM radio, removable h/top, other access., \$1,400. 213-671-3832.	A
Austin-Healey, 1960 3000, \$650. 714-892-1401.	A
Hornet, 1970 SST, 304 V-8, auto. trans., p/s, p/b, r/h, \$2,950. 213-679-6047.	A
Volkswagen, 1966 deluxe sedan, radio, 36,000 mi., \$950. 213-672-2434.	A
Buick, 1969 GS 400, 340 h.p., r/h, p/s, p/b, auto. trans., \$2,700. 213-296-2431.	A
Station Wagon, 1959 Oldsmobile Fiesta, air, p/s, p/b, r/h, air lift shocks, \$200. 213-323-4257.	A
Volkswagen, 1960, r/h, \$350. 714-827-9344.	A
Pickup, 1962 Ford, V-8, 3/4-ton, hvy. duty, 8' body, good tires, \$750. 213-391-2040.	A
Volkswagen, 1964, \$550; T-Bird, 1964, \$795; Oldsmobile, 1965 Delta 88, \$895; Pontiac, 1966 G.T.O., \$1,045; Pontiac, 1967 Bonneville, \$1,495, min. bids. Credit Union ext. 1117.	A
Thunderbird, 1956, all power, porthole top, Continental kit, \$1,300. 213-376-9600.	A
Rambler, 1962, 4-dr., \$100. 213-675-1228.	A
Volkswagen, 1967, radio, \$1,100. 213-268-9608 after 6 p.m.	A
Chevy II, 1963 Nova, 6-cyl., auto. trans., radio, \$650. 213-388-4602.	A
Riviera, 1969, fully equipped, 14,000 mi., \$3,750. 213-631-2645.	A
Cougar, 1967, 4-spd., a/c, tape deck, d/brakes, \$1,775. 213-372-1386.	A
Austin America, 1968, auto., \$1,250. 213-531-8972.	A
T-Bird, 1965, full power, \$1,300. 213-542-2836.	A
TR-3, 1960, new 125 h.p. eng., clutch & trans., custom side curtains, \$950. 213-374-2091.	A
MGA, 1958 convt., \$700. 213-423-1363.	A
Chevrolet, 1967 Malibu, 2-dr., h/top, p/s, radio, \$1,650. 213-830-1442.	A
Household Items For Sale	
Range, O'Keefe & Merritt, coppertone, gas, 4 yrs. old, \$75. 714-839-6117.	B
Crib, mattress, \$30. 213-237-1568.	B
Broiler, Open Hearth, & rotisserie, Farberware, fully auto., 10" x 15" broiler rack incl., \$30. 213-534-3021.	B
Bunk Beds, Metalcraft, avocado green, \$25. 213-696-7929.	B
Divan, beige, \$45. 213-677-5502.	B
Bedsprad, Sears, turquoise, quilted, full size, \$8. 213-645-7972.	B
Buffet, vintage, 5'7" long, 37" high, long linen drwr., \$100. 213-375-4312.	B

Household Items For Sale	
Refrigerator, coppertone, 15' top freezer, \$50. 213-532-5614.	B
Hope Chest, walnut, 2 yrs. old, Lane, added drwr., \$25. 213-371-2692.	B
Chairs, 2 orange velvet, barrel-type, \$25 ea. 213-679-4241.	B
Crib, blue & white, w/mattress, \$24. 213-376-4831.	B
Cribs, 2, std. size Babyline, \$15 ea. 213-679-7996.	B
Coffee Table, 4'x6', glass, \$125. 213-371-3667.	B
Refrigerator, Tappan, 12 cu. ft., \$45. 213-326-6195.	B
Bathinette, new pad, \$10. 213-926-4197.	B
Refrigerator, G.E., \$15. 213-376-5551.	B
Hutch, French Provincial, \$125. 213-833-9257.	
Miscellaneous For Sale	
TV, 25" b&w, \$100. 213-675-6020.	C
Trailer Hitch, Readie Lift, \$40. 213-676-5787 bet. 10 a.m. & 3 p.m.	C
Books, science fiction paperbacks, approx. 1,000, \$5 per hundred. 213-372-6740.	C
Duplicator, Gestetner #120, \$60. 213-346-7829.	C
Stereo Components, Weathers turntable, \$110; tape recorder, Tanberg mod. 64, \$260. or \$350 for both. 213-377-7670.	C
Pistol, .357 magnum, w/holster, \$85. 714-842-5281.	C
Mini Bike, Taco 44, 3 h.p., all extras, \$90. 213-833-3845.	C
Bucket Seats, for 1964 Malibu, black, \$50. 213-325-3452.	C
House, lge. 3-bdrm., 1 bath, bltins, h/wood floors, blk. fence, completely redecorated, 5 min. from Northrop & near Hawthorne High, \$26,500. 213-644-6270.	C
Surfboard, 9'6", Velzy, \$30. 213-675-3885.	C
Socket Set, Snap-On, 1/2" dr., \$180. 714-534-2277.	C
Guitar, Fender precision bass, & Guild thunder bass amplifier, \$325 or sell sep. 213-882-0761.	C
Pups, German shorthaired pointer, \$75 & up. 213-833-3788.	C
Trailer, Teardrop, sleeper only, 2 adults, \$150. 213-374-8547.	C
Lot, Bermuda Dunes-Palm Desert area, 7,500 sq. ft., improved, near golf & airport, terms, \$4,500. 213-241-0326.	C
Helmet, 2, arc welder's type, \$3 ea. 714-838-7161.	C
Engine Equipment, Marine inbd., trans., shaft, rudder, manifolds, for 292 or 312 Ford eng., \$150. 213-371-3473.	C
Kittens, Siamese, avail. approx. May 8. \$20. 213-320-6685.	C
Boat, 30', S-to-S radio, stove, bunks, extras, \$1,500. 213-751-6250.	C
Motorcycle, 1968 Triumph T-120R, 650 cc, \$900. 213-534-2828.	C
Lot, 3-acre bldg. site, between Woodland Hills & Westlake Village, horses O.K., many trees, low dn., utils. in, \$28,500. 213-783-8271.	C
Record Player, G.E. stereo console, 8 spkrs., \$200. 213-225-3908.	C
Ski Boat, trailer, tarp., Fleetcraft hull, fiberglass, 16', 90 h.p. Evinrude motor, \$1,500. 213-675-9776.	C
Bowling Ball, Brunswick Black Beauty, #202 S12, ladies, carrying case, \$5. 213-541-3000.	C
Pup, Yorkshire Terrier, male, 8 mos. old, AKC champ. sire, all shots, \$75. 714-529-8082.	C
House, 3-bdrm., family rm., 2 baths, 2-car gar., f/place, patio, bltins, new paint, 2 miles from Aircraft Div., Hawthorne, \$27,950. 213-321-5529.	C
Lawnmower, Pennsylvania, power, 24" reel-type, Briggs & Stratton 1 1/2 h.p. eng., completely recond., \$35. 213-670-1787.	C
Motorcycle, 1966 Jawa CZ, 125 cc, \$240. 714-494-6940.	C
Guitar, Diamond 12-string elec., & amplifier, Elk, 50 w., \$310. 213-541-3083.	C
Golf Cart, Nadco 600 deluxe, \$10. 213-674-3843.	C
Rearend, 4:11 Chev., fits '58-'64 models, \$30. 213-325-3675.	C
Golf Clubs, ladies, 2 woods, putter, 4 irons 3-5-7-9, \$20. 805-498-4237.	C
Bar, custom-made, 3 1/2 x 6', black superior Naugahyde, 3/4" plywood frame, formica top, \$125. 213-221-0991.	C
Boat, 16' glass hull, trailer, Merc. 70 h.p. o/bd., bait tank, all access., \$800. 213-645-3613.	C
Car Seat, walker-jumper, infant seat, \$12. 213-379-1873.	C
Piano, made by Horace Waters & Co., mahogany upright, 4 1/2' tall, 5' wide, \$150. 213-325-3404.	C
Boat, 12', glassed plywood w/trailer, 35 h.p. Evinrude motor, \$250. 213-675-7354.	C
Boat, 12' alum. Mirro-Craft, 1 yr. old, \$175. 714-545-2035.	C
Pool Filter, Diatomaceous earth-type, 1/3 h.p. motor, stainless steel tank, for 18' dia. pool, \$40. 213-323-6717.	C
Wet Suit, fins, mask, snorkel, spear gun, med. size, \$30. 213-325-2512.	C
Pups, Dachshund, long hair, AKC reg., female & male, \$85. 714-826-6618.	C
Surfboard, 10'4" Bing Noserider, \$45. 213-671-5070.	C
Encyclopedia, Compton's pictured, w/year-books current to 1970, \$80. 714-837-2757.	C
Houses, 2 on R-3, 1 3-bdrm., 1 2-bdrm. & rumpus rm., fenced yd., \$35,250. 213-374-8528.	C

Miscellaneous For Sale	
Camera, Mamiya-Sekor C33, professional mod., 80mm twin lenses, interchangeable, access., \$200. 213-534-3970 before 3 p.m.	C
Amplifier & tuner, Scott stereo matching, \$60 ea. or both for \$95. 213-329-6622.	C
Duplex, Manhattan Bch., 2-bdrm, 2 baths, 1/2 blk. to ocean, good terms, \$75,000. 213-545-1383.	C
Sander, Skil, 3" dustless belt, carrying case, 25' ext. cord, \$50. 213-547-9205.	C
Bicycle, 3-spd., Stingray, 20" whls., \$25. 213-397-3504.	C
Motorcycle, 1966 Triumph, Bonneville, 9,500 mi., \$600. 213-377-7234.	C
Pup, female AKC German Shepherd, 4 mos. old, black, silver & some tan, \$50. 213-370-6793.	C
Mags, 4 Ansen Sprint, 14", fit Ford, \$125. 213-671-7875.	C
House, 3-bdrm., h/wood floors, cpts., large yd., Torrance area, assume low int. loan, \$24,500. 213-326-8668.	C
Tape Deck, Viking stereo, 2 & 4-track, 3 3/4" & 7 1/2" per second, \$35. 213-326-8455.	C
Stereo Components, 2 AR-2A spkrs., \$130. 213-541-1568.	C
Rifle, 30-06 Remington, 740 auto., bag & 20 rnds. of ammo, \$98. 213-470-4475.	C
Stereo Console, Packard Bell, TV-AM-FM-phonos., Swedish modern design, \$70. 213-398-9835.	C
Surfboard, 9'6" Jacobs, clear w/orange stripe, \$30. 213-375-7265.	C
Lawnmower, Sears 18" power reel-type, used very little, inc. catcher, \$70. 213-377-3487.	C
Pistol, Ruger Black Hawk, .357 mag., \$75. 805-946-1425.	C
Radio, AM for '66 or earlier Volkswagen or Karmann-Ghia, 6 V., Bendix Sapphire, fully transistorized, \$25. 213-375-5204.	C
Camper, 1966 Teardrop, 10 1/2', sleeps 6, bltin jacks, bounce aways, & boot, \$1,300. 213-532-4295.	C
Table Lighters, Bronica butane, gold-silver or wood, \$13 ea. 213-674-8088.	C
Cemetery Lot, Inglewood, Avalon sec., dbble. interment, \$600. 805-498-4216.	C
Acreeage, 5 acres, Lucerne Valley, close to Feather River proj., \$6,500. Box 601.	C
Home, corner, 2-story, 4-bdrm., 2 baths, enc. patio, lge. yard w/boat or trailer gate, f/place, cpts., dps., assume FHA or new terms, \$32,500. 714-968-5343.	C
Acreeage, 5 acres in Adelanto, utilities, \$400 dn., \$8,250. 213-378-1026	C
Carpeting, nylon, honeybeige, short loop pile, approx. 60 yds., \$65. 213-378-7166.	C
Drill Motor, 1/4" Craftsman, w/screw driving attach., \$10. 213-545-6719.	C
Mobile Home, Park Lane, 20'x60', a/c, 2-bdrm., 2 pullman baths, f/place, dining rm., bltins, cpts., dps., patio, carport, store rm., \$3,500 dn., terms, will finance, 9,000. 714-526-1723.	C
Mini-Bike, Wilier Chris-cycle, 3 1/2 h.p., 3-spd., extras, \$220. Box 602.	C
Boat, 14' Alumacraft alum. w/quick & easy loader, \$250. 213-867-8873.	C
Shotgun, Ward's 12 ga. pump, case, \$45. 213-370-3821.	C
Rifle, Ruger, 44 mag. carbine, \$80. 213-532-7175.	C
Workboxes, 2 side-mounted, lockable, steel, pipe rack & vise for pickup truck or camper shell, \$125. 213-545-5995.	C
Stereo, Magnavox, 1 cabinet contains spkrs., turntables, AM-FM radio, 1 cabinet contains spkrs. & record storage, approx. 8 yrs. old, \$120. 213-329-3788.	C
Suits, ladies, mature styles, sizes 18 & 20, \$4, other items. 213-379-5652.	C
Aquarium, 8 gal., \$8. 213-376-4586.	C
Mini-Bike, Bonanza, 3 h.p. Briggs & Stratton eng., \$85. 213-676-3379.	C
Radio, Craftsman, AM-FM w/AFC control, Hi-Fi amplifiers, 3-spd. record player w/storage, walnut cabinets, \$50. 213-675-2514.	C
Receiver, Hammarlund HQ-180 & S-200 spkr., \$200. 213-831-0558.	C
Aquarium, 15 gal., reflector, lights, htr., many access., \$25. 213-645-4697.	C
Shocks, will fit '67-'70 Ford, \$8 set. 213-671-6692.	C
Air Conditioner for auto, Bon Aire, \$25. 213-671-2776.	C
Fan, 18" elec., 3-spd., \$15. 213-671-4705.	C
Motorcycle, 1960 Zundapp, 250 cc, \$100. 213-837-3671.	C
Acreeage, 6 acres, Hemet area, Rt. 74, water avail., 1/3 dn., 7 1/2% int. on bal., \$30,000. 714-642-2616.	C
Boat, Coronado 25, fully equipped, Evinrude o/board, 12 V./110 V. elec., r.d.f., many extras, \$6,500. 213-823-2233.	C
Cabin Cruiser, 21' Glen-L inbd., trailer, 327 Chev., fully equipped, \$2,300. 213-542-2098.	C
Wanted to Buy	
Pistol, Colt .45 auto., military model. 213-862-3027.	D
Parts for Neptune-Mighty Mite Muncie outbd. eng. 213-434-3564.	D
Bunk Beds, twin size, in good condition, with or w/out mattresses. 213-372-5859.	D
Belt Sander, 6" & 48" &/or 6" jointer-planer, Craftsman or similar. 213-678-6083.	D
Oldsmobile, F-85, late model, with air cond. 213-375-2370.	D
Toy Trains. 213-675-6461.	D
Camping Equipment, good condition. 213-371-7382.	D
Motorcycles, Yamaha 80, that need repair. 213-645-2711.	D

EDITOR'S NOTEBOOK

Recently, I interviewed Stuart Tanner of Northrop Data Processing. He had just received one of Scouting's highest adult leadership award — the Order of Merit (Northrop News, Nov. 19, 1969). At the time I recall being tremendously impressed by Mr. Tanner, his warm and friendly personality, his modesty and outgoing manner. He preferred talking about his Explorer Scouts to discussing himself; was more inclined to chat about today's youth than his personal involvement with them. Mr. Tanner feels strongly that a few youngsters who misbehave receive far too much attention, that the majority are dedicated, motivated and wholesome.

Last month, Mr. Tanner penned a note to me with a request. It shocked me to the core. As a concerned individual I was appalled. As a parent, I knew it could have happened to me, or to you. I am taking the liberty of repeating some of his note.

"In February my son, Tom (a Long Beach State College junior) was returning from a date at Disneyland with his fiancée. Two boys in another car forced him off the road. They did not know him and he did not know them. He eluded them and came home. They followed and prepared to attack him in our front yard. He resisted. They returned to the car, took out a shotgun and fired point blank at him. My wife and I heard the commotion and were on the porch when the shot was fired.

"Tom has more than 400 pellets of birdshot from just below his eye to his abdomen. He almost died from loss of blood. His right arm is almost useless. His spirits are good. He is continuing his schooling, although he is having to learn to write left-handed. His big problem now is transportation. His car is a stick shift. He has spent many hours keeping it at peak performance. Now he must sell it in order to buy a car with an automatic transmission.

"I can't begin to thank people, at home and at work, enough for their prayers and help. I certainly owe special thanks to my supervisors at NDP, to our Northrop Blood Bank and thank heaven for our wonderful group insurance and the people who administer it. I might have had to sell my home to pay the bills, although I have seen very few of them, thanks to the insurance.

"I would appreciate it greatly if you would run the following advertisement in the Northrop News."

Chevrolet, 1964 Impala SS 327, Warner T-10-4-speed Hurst "Comp. Plus" shifter, heavy duty clutch with new flywheel, heavy duty suspension, new shocks, new fiberglass belted wide ovals, new metallic paint, 8,000 rpm tach., fog lights, metallic brakes, includes spare 4-bbl. carb. and 4-bbl. intake manifold, 3.70 ratio differential, \$1,000. 213-633-4477.

I am sure other Northrop News advertisers on this page will understand the liberties we have taken in running this for sale item in its entirety. More, I am sure every Northrop family joins with the Northrop News staff in wishing Tom Tanner Godspeed in his recovery and encouragement for the Tanner family, Stuart, Mary, Tom, Kathy and Susan.

Bryan Weickersheimer

CAMERA CLUB ADDS DARKROOM

Northrop Camera Club has just completed installation of a new darkroom facility at the NRC Clubhouse, Hawthorne, which is available to club members.

The group holds regular meetings at 7:30 p.m. the second and fourth Tuesday of each month. Lou Becker, a Kodak representative, will be the special guest at the April 14 meeting.

NORTHROP NEWS

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Editor—Business Affairs Rosemary Hussey

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3901 West Broadway, Hawthorne, California 90250
Telephone: (213) 675-4611, ext. 4273

Free (To Be Given Away)	
Cat, male Persian, altered, declawed, 3 yrs. old. 714-778-0135.	F
Dog, beagle, AKC reg., female, 1 yr. old. 714-962-2367.	F
Pup, part beagle, part sheepdog, male, 10 wks. old. 714-523-5304.	F
Rentals Offered	
House, 4-bdrm., 2 baths, fully furn., d/washer, washer, dryer, cpts., dps., gar., water & rubbish removal paid, 4 short biks. to Northrop, \$240 mo. 213-833-2512.	G
Apt, 2-bdrm., 1 1/2 bath, cpts., dps., water & trash pd., adults only, no pets, \$175. 213-679-5780.	G
House, 2-bdrm., Palm Springs area, pool, adults only, \$150 wk. 213-567-6260.	G
Cabin, Moonridge, Big Bear Lake, 3-bdrm., 2 baths, f/place, comp. furn., family only, \$150 wk., \$60 w/end. 213-326-7232.	G
Cabin, Green Valley Lake, \$45 w/end, \$65 wk. 213-320-2002.	G
Cabin, Big Bear Lake, \$30 w/end. 213-867-0662.	G
Chalet, 3-bdrm., 2 baths, completely furn., sleeps 10, Lake Arrowhead, \$150 wk., \$75 w/end. 714-528-2303.	G
Rentals Wanted	
Tent Trailer, to sleep 6, July 17 to Aug. 2. 213-326-7528.	H
Lost	
Drafting Machine, Bruning, model 2699PC. 213-325-2952.	J
Personals	
Thank you all so much for my retirement party & gifts. I will always remember my many friends at Northrop. JIM STRONG.	L
Your comforting expressions of sympathy are deeply appreciated & will always be gratefully remembered. THE NASTANSKI FAMILY.	L
I wish to sincerely thank all my friends for the cards, flowers & gifts I received during my recent illness. GEORGIA STROUB.	L
For Sale or Trade	
Dryer, 1969 Maytag elec., \$125 or trade for Maytag gas dryer. 213-534-3410.	M
Rides and Riders	
Rides Wanted	
7 a.m. — 3:42 p.m.	
Crenshaw & 166th, Torrance. Betty C. Bar-noski, 213-324-1821.	

Twelve Complete Course in Basic Computer Language

Twelve Ventura Division men are speaking a new language these days—it is the language of the computer.

They have completed a five-week in-plant course entitled "Basic Fortran IV" taught by Ivan Blum of Economic Analysis. The men learned the skills necessary for writing basic computer programs.

During the 20-hour course, each wrote seven programs one of which was successfully run on the RAX terminal connected to an

IBM 360/40 computer at the Northrop Data Processing complex in Hawthorne. Another program was transmitted from the 360/30 computer at NDP offices in Ventura and run on the 360/65 at Hawthorne.

Receiving certificates for completion of the class were Bill Glass, Frank Hoeven, Bob Jones, Bob Harris, Hal Hunsberger, Cal Peterson, Ted Randolph, Richard Provenza, Bob Hodson, James Karas, Bob Keefer and Tony Piskuscas.



COMPUTER LANGUAGE STUDENTS
Practicing at Ventura RAX terminal are Frank Hoeven, left, Bob Harris.

Class in Monte Carlo Simulation Will Be Taught By Dr. von Guerard

An in-plant course in "Engineering Applications of Monte Carlo Simulation" began Wednesday, April 1, at the Ventura Division and will continue weekly through May 6.

Teaching the 4:45-6 p.m. Wednesday courses in the Administration Building assembly room is Dr. Herman W. von

Guerard of the Systems Analysis group at Ventura.

Dr. von Guerard says the course deals with "numerical experimentation in order to study the effect of uncertainty in the performance of complex systems." It will be of interest to systems analysts and engineers in the production, reliability, scheduling and industrial fields.

Further information may be obtained by contacting Al Robinson in the Training office, ext. 1180.

JA SALES

Members of the Northrop-Coupled Junior Achievement Company CONICO sold 74 memo desk pads to Ventura Division personnel on a recent lunch hour sales campaign in the company cafeteria.

The memo pads, at \$1.50 each, are the second product developed and sold by the high school-age J.A. participants. At Christmas time the youngsters sold holiday candles.

The J.A. sales personnel included Tom Smith, Stuart Guaspari, Mike Lewis, Karen Woods and Grace Jackson. They were assisted by Anne Lorentsen, 15, daughter of the Ventura Division's J.A. Advisor Eldie Lorentsen.

Rec Club Sets Five Baseball Game Dates

It's baseball time again for Ventura Division personnel.

The Ventura Division Recreation Club is offering five big league baseball nights with reserved seats and bus transportation for a package price of \$2.50 per person.

All of the games feature the Los Angeles Dodgers. The dates and opponents are May 1, Montreal Expos (kids' cap night); June 26, San Diego Padres (kids' helmet night); July 17, de-

fending world champion New York Mets; Aug. 28, St. Louis Cardinals; and Sept. 23, San Francisco Giants.

"The Recreation Club will be using a 45-passenger bus to transport members to and from the games," noted Rec Club President Dorothy Prychoda. "So there will be a limited number of tickets available."

The bus will leave the Ventura facility each game night at 6



SHARING IN APOLLO TEAM AWARD
W. A. Steyer congratulates Ed Ewing and gives him copy of special award as other engineers await their turn.

Apogee Club Members Share Award

More than 100 members of the Ventura Division Apogee Club have received copies of an award from the Institute for the Advancement of Engineering for work on the Apollo Earth Landing System.

The Apollo Earth Landing System team won an Engineering Project Achievement Award for "having brought to the operating

stage projects which, because of their unique character, are worthy of special recognition."

Apogee Club members are chosen from the many different departments which contributed to the ongoing success of the parachute deceleration system which has brought Apollo astronauts safely back to earth.

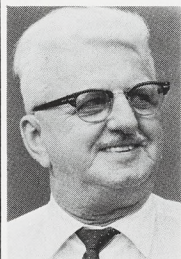
W. A. Steyer, division program manager for Aerospace Landing

Systems, accepted the award on behalf of the Ventura team. He, in turn, saw that copies were distributed to team members.

"It is a privilege for me to share this award with all who aided in the success of the Apollo Earth Landing System," Mr. Steyer said. "The dedication and initiative shown by the Apollo people have made them worthy of this honor."

Venturans Qualify For Service Pins

A. L. (Art) Rosdahl leads the March list of Ventura Division personnel qualifying for Northrop service pins.



Mr. Rosdahl

Mr. Rosdahl went to work at the former Radioplane plant on March 13, 1950, as an inspector. Today he is a foreman in Shipping and Receiving.

Four persons qualify for 15-year pins. They are Jack Vickers, Advanced Design; Chuck Simmers, Security and Plant Protection; Elmer Koik, Electro-Mechanical Design; and Mary Clerico, 747 Contracts.

Receiving pins for five years of service are Tom Tapper, Francis Schwend and Jack Halloran.



INSPECTING A RECOVERED Ventura Division-produced Apollo Earth Landing System main parachute at the Manned Spacecraft Center, Houston, are four NASA recovery systems experts. From left, they are Bob West, John Kiker, Kirby Hinson and Bill Drummond. Chute was from Apollo 10. Two chutes were recovered from Apollo 12 and none from Apollo 11.

NEWS STORY BRINGS SIMPSON AID IN BUILDING HIS ALL-WOOD CLOCK

John Simpson is going to be able to finish building his all-wood clock after all.

In the last edition of the Northrop News Mr. Simpson called for help from his co-workers at the Ventura Division. He needed the August 1964 edition of Popular Mechanics Magazine to obtain the final plans for his unfinished clock.

"I had over a dozen calls from people who saw the article and had the magazine," Mr. Simpson said. Is the clock almost finished now? "Oh, no. I've got another

four to five weeks of work on it yet."

But without the response from fellow readers of the magazine his 150-200 hours of past effort would have been in vain.

IS IT NEWS?
CALL EXT. 1425
VENTURA

BARBERSHOPPERS SLATE CONCERT

Members of the Conejo Valley Chapter of the Society for the Preservation and Encouragement of Barber Shop Quartet Singing in America, including several Ventura Division men, will sing in concert this weekend.

"Banners of Harmony In The Park," sub-titled "A Good Ole Barber Shop Quartet Concert," will take place at 8:15 p.m. Saturday in the California Lutheran College auditorium, Thousand Oaks. The Conejo Valley chorus and several visiting quartets will be featured.

On The Job



BARBARA CLARK writes requisitions and deals with Standard Parts, forms, stationery and related materials from her office in the Manufacturing building. She has been with the Ventura Division for two years. (Photo by Robert Thornton)

NORTHROP NEWS

VENTURA DIVISION

Northrop Corporation, Beverly Hills, California

Vol. 28, No. 7

April 15, 1970



BOB JOHNSTON GETS 30-YEAR PIN
With Don Warner, left, and Welko E. Gasich doing the honors.

30-Year Pin to Johnston, Four Others Hit 20 Years

Nine Ventura Division men with a total of 170 years of company service — including a 30-year man — qualified for service pins this month.

Leading the service parade is Robert T. (Bob) Johnston. Marking his 30th year with Northrop, Mr. Johnston is the senior Venturan in years of service and ranks 13th in the over-all company.

There are also four 20-year men and four more with 15 years of service with Northrop.

Mr. Johnston went to work at what is now the Aircraft Division in Hawthorne on April 8, 1940. He worked as a design engineer on Northrop's first military aircraft, the N-3PB seaplane built for Norway.

He later worked on the P-61 Black Widow, the Flying Wing, F-89 Scorpion, T-38 jet trainer and F-5 Freedom Fighter.

He came to Ventura for four years in the early 1960's and led a design team on the NV-105

target drone which led to the MQM-74A. After another stint in Hawthorne, Mr. Johnston has been back at Ventura for the past two years working on advanced design in drone aircraft.

When asked to name a major highlight in his 30 Northrop years, Mr. Johnston replied, "It's been nothing but fun. There have been diversified challenges and I've enjoyed every one of them." He was the subject of an in-depth story in the Northrop News last year.

Four For Twenty

Notching 20 years in their Northrop belts are Irving Irvine, Victor Morgan, Henry Gardner and Alexander Blackwood.

Irving Irvine also started at the Aircraft Division. He was hired in 1950 as a senior engineer. Today he is an engineering specialist in liaison engineering.

Vic Morgan began his career 20 years ago at Van Nuys as a production helper on the target (See VETERANS, page 6)



Mr. Irvine



Mr. Morgan



Mr. Gardner



Mr. Blackwood

Northrop Submits Proposal for New Generation of Jet Fighters

Working in a competitive environment unmatched in recent years, Northrop Corporation has submitted its proposal for a contract to develop and produce a new generation of jet fighter aircraft for use by allied nations.

Proposals for this new weapons system, to be known as the International Fighter, were delivered this month and contract award announcements are expected in June.

The USAF, sponsor of the competition, invited bids from eight major U.S. aerospace firms; Northrop, McDonnell Douglas, Lockheed and Ling-Temco-Vought responded.

The supersonic Northrop F-5A-21 is Northrop's entry to meet

the stringent requirements of the competition.

Impressive

The F-5A-21 is an improved version of the F-5 tactical fighter now in use with 16 nations which has posted an average operational ready rate of 80 per cent in more than 400,000 hours of flying time. It has demonstrated an average flight utilization in excess of the programmed 20 hours per month and proven average maintenance rate of less than 18 hours per each flight hour. And it has consistently met or exceeded all quality and reliability objectives.

The proposal team was backed up by every Aircraft Division organizational element and included more than 90 documents, each ranging in size from a few pages to more than 400 pages.

NAMFI Bid Wins Key Approval

There is good news for the Ventura Division and Athens, Greece.

The North Atlantic Treaty Organization's executive committee has reportedly approved a \$7.9 million contract for MQM-74A target systems and services for the NATO Missile Firing Installation (NAMFI) on the island of Crete.

Greece administers and operates the range for NATO, and formal approval by the Greek minister of defense and the necessary paperwork are all that remain for final ratification, according to a report in the Wall Street Journal on Friday, April 10.

Welko E. Gasich, Division gen-

eral manager, confirmed the announcement after communication with Ventura's Ralph Friesen in Athens. Mr. Friesen is NAMFI proposal manager. The international competition for the three-year program saw Northrop and the MQM-74A selected over French and other American proposals.

"This contract will open doors for additional MQM-74A drone business in Europe," Mr. Gasich said.

Several European nations now utilize the Ventura-produced KD2R-5, a basic training target.

The MQM-74A, known internationally as the Chukar, will be used by NATO member nations on Crete for ground-to-air mis-

sile training. Hawk missile batteries fire on remotely-controlled target drones which simulate enemy aircraft.

The MQM-74A or Chukar is the latest in a series of radio-controlled aerial target drones produced by Northrop.

Three Northrop Men Are Officers For Accountants

Three Northrop men will be installed as officers in the Conejo Valley Area chapter of the National Association of Accountants at the group's charter meeting Monday, April 27.

Dan Cashier of the Corporate office has been elected a vice president and Dick Davis and Eldie Lorentson of the Ventura Division, were chosen as directors of publications and member acquisition, respectively.

More than 40 charter members will participate in ceremonies at Howard Johnson's Motor Hotel in Thousand Oaks. Thirteen Ventura Division men will be charter members. The president is Carlyle Livingston of Westlake, a partner in Arthur Andersen & Co., Los Angeles.

Persons desiring more information about membership in the new chapter are urged to contact Mr. Davis at ext. 372.

Golfers Set Event For Santa Barbara

The Santa Barbara Community Golf Course is the next target for members of the Ventura Division Golf Club.

Ventura golfers will play that course Saturday, April 18. Green fees are \$3 and all Venturans are welcome to participate, according to Lou Gabriel, club president.

Wayne Merritt and Lew Vinson are tied for first place in point standings for golfer-of-the-year after the first two tournaments. They have 140 apiece. Pat Cloward is next with 90, Al Hahn has 80 and four golfers have 70 points.



DIGGING NEW FACILITY

Construction workers remove earth for Acoustic Test Facility.

'Dozers Digging Deep For New Test Facility

Work is well under way on the Ventura Division's new Acoustic Test Facility. The swimming pool-like oval structure is being constructed at the Fort Conejo facility.

When completed in early summer it will give Northrop a completely independent underwater test capability. Tests for acoustic sensitivity, beam patterns and sonar frequency response have formerly been conducted at U. S. Navy or other industrial facilities.

The tank will be 30 feet deep, 50 feet long and 30 feet wide at its maximum points. It will contain 270,000 gallons of water.

'Bridge' Important

Spanning the concrete-lined tank will be a test unit support bridge standing five feet over the water level. Rising perpendicularly from the "bridge" will be a pneumatic actuator which will raise and lower the test unit. The actuator will rise 20 feet above the bridge.

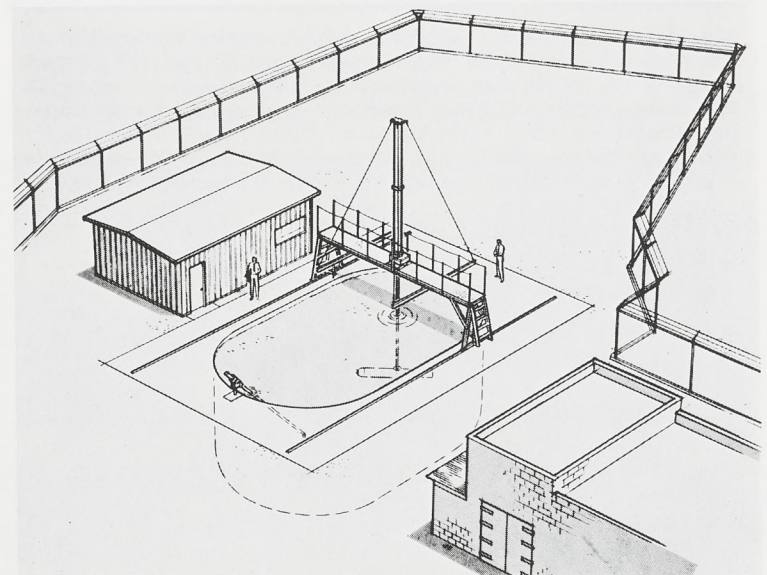
At the other end of the tank will be a monitoring hydrophone or projector — depending upon which system is being tested.

Controls and the electronic console for testing will be housed in a steel building adjacent to the tank. The building also will contain the pumping machinery

needed to keep the water filtered and circulating.

Tests will not be concerned with flow. They will be concerned, however, with underwater electronic sound and beam patterns such as those used in the Mark 30 Mobile Anti-Submarine Warfare Target and similar underwater systems.

Allied Construction & Engineering, Ventura, is the contractor.



WHAT IT WILL LOOK LIKE

Artist's rendition of underwater test facility at Fort Conejo.

He's Only Been Absent Once in 12 Years—See Page 6

CMIP Effort Realizes \$21.6 Million Savings, \$784 Per Employee

It is a long-standing Northrop policy "that each individual vigorously direct his efforts toward improved management techniques, high quality production, and effective performance at the lowest possible cost."

Hourly personnel perform this function through the Suggestion Awards Program. Salaried and supervisory personnel utilize the Cost and Management Improvement Program.

Last year, for example, savings of \$21.6 million were reported by CMIP participants throughout the corporation — an average of \$784 savings for each person working for the company.

Although all supervisory and salaried personnel participate in the CMIP program, three major areas are the most significant contributors to these savings. They are Northrop Data Processing, Manufacturing and Procurement departments.

The increased use of data processing techniques save countless man-hours. Manufacturing comes up with new manufacturing methods saving time and materials. Procurement achieves savings through competitive bidding.

Each division, as well as the subsidiaries, Hallicrafters and Page Communications Engineers, has its own goal and program. Division coordinators report to Corporate Coordinator Raymond Detmers, who in turn reports to George F. Douglas, Corporate senior vice president and senior

member of management responsible for cost reduction.

Eric Von Hurst heads the Aircraft Division CMIP effort. John D. C. Roach is the Ventura Division coordinator. Roy Graboff, assisted by Joanne Martin, handles CMIP at the Electronics Division.

Richard S. Taylor and Ed Budginas coordinate at the Electro-Mechanical Division and C. R. White reports to them from the Huntsville (Ala.) facility. W. R. (Bill) Hayman reports for Northrop Data Processing.

New to the formal CMIP program are Page, where L. A. McMakin is coordinator, and the Hallicrafters Co. where C. O. Anderson, vice president-Operations, is in charge of the program. Assisting Mr. Anderson is Frank W. Yazombek.

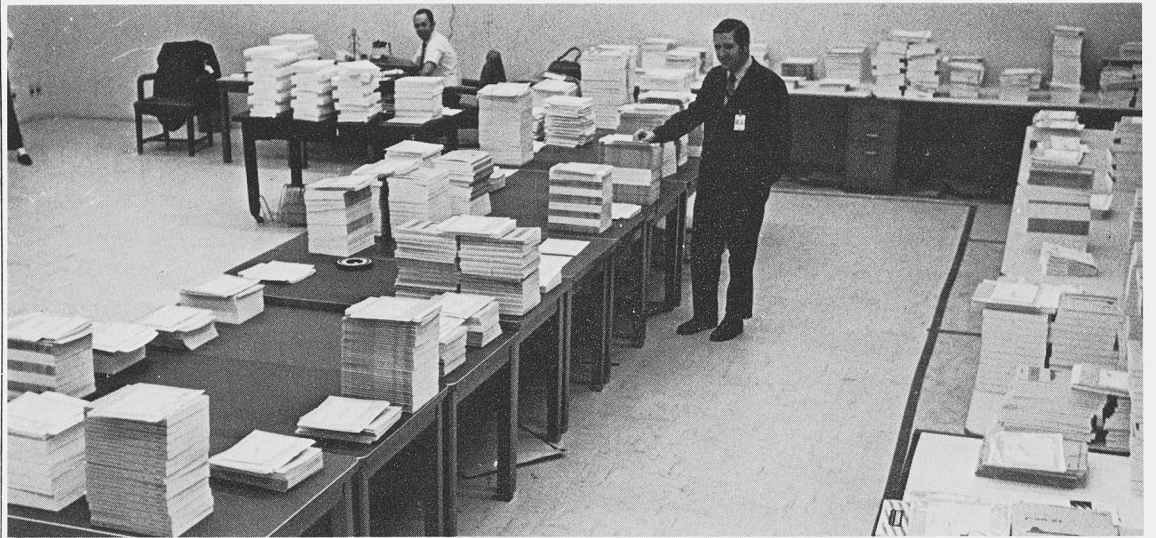
How It Works

CMIP suggesters do not receive cash bonus awards for their ideas the way suggestion awards recipients do. Instead, CMIP activities are included in their overall salary evaluation.

This is especially true in Procurement. "Significant savings have been achieved by buyers throughout the company who make a conscientious effort to seek out and secure lower prices while maintaining quality," Mr. Detmers said.

The CMIP program, formally established at Northrop in 1963, also helps reduce costs on NASA and Department of Defense cost-plus programs.

F-5A-21 Proposal Documents Row on Row



W. H. RUDDY, F-5A-21 Proposal manager, center and Ron Rucker, Graphics Operation, both of Aircraft Division, pose amidst a portion of more than 90 volumes of literature and drawings related to the Northrop proposal for a new generation of jet fighter aircraft for use by allied nations. See story, page 1.

Savings Bonds Offer Many Advantages To Those Seeking Investment Security

A major question every Northrop employee will probably ask himself next month when the annual U.S. Savings Bonds program kicks off: Why U.S. Savings Bonds?

Basic questions deserve direct answers. Thus:

1. Savings Bonds provide a solid back-up to investment, commercial or similar savings plans. Bonds offer a guaranteed 5 per cent interest rate; the current market fluctuations won't affect bonds.

2. Savings Bonds offer flexibility. It's easier to get to your

money if you need it. Your money is available after just 60 days — not a year or two as required in many high-interest commercial programs.

3. Tax advantages. Fill-out the form for the payroll savings plan and name one of your young children as owner. File return in the name of the child listing increase in value at the end of the first year. And, if your child's income is less than \$600, no further return need be filed unless the income exceeds \$900 in any one year.

4. A similar taxation question involves the parent, if the bonds

are in his name. While federal law requires that all interest from savings or investments must be reported annually, it also allows the taxpayer to declare interest on Savings Bonds only at the time bonds are cashed.

5. Educational programs authorized by the Internal Revenue Service allow a child to hold the bonds with parent as beneficiary (not co-owner). By cashing the bonds in when needed, the accrued interest on this plan allows up to \$900 interest (or income) before tax is due.

6. Interest on bonds is tax free at state and local levels.

These are some of the answers to questions you may have planned to ask your department coordinator next month. Northrop's team is gearing-up for the Savings Bonds program. Be ready to participate — for your child's education, your retirement, or just to have handy cash socked away for a rainy day.

SUMMER BOWLING COMMENCES IN MAY

Summer bowling activities for NRC members and their families in the Hawthorne area will get under way in early May.

Leagues are arranged for low average, as well as experienced, keggers. Personnel Activities outlets have registration forms for teams, couples and individuals.

HL-10 Pilot Gets Harmon Trophy



MAJOR JERAULD R. GENTRY, USAF, receives congratulations from Vice President Spiro Agnew upon receipt of the 1969 Harmon International Trophy for aviation. At left are former astronauts William A. Anders and Frank Borman, who received a similar trophy for astronautics, along with Astronaut James Lovell. Major Gentry was recognized for piloting the Northrop-built HL-10 lifting body in its first powered flight. The astronauts were the crew of Apollo 8.

FOURTH ANNUAL REUNION MAY 20 PLANNED BY RETIREMENT CLUB

The Northrop Retirees Club will hold its Fourth Annual Reunion at the Alondra Club, Lawndale, on May 20, according to George Vaughan, club president.

The club now has 975 members scattered over the entire United States, Europe and the Virgin Islands.

Speaker for the reunion will be John L. McCoy, vice president and 747 program manager. Activities will begin at 3 p.m. with games until 6 when the dinner begins. The program will start at 7 p.m.

A special feature of the reunion will be recognition of those club members who celebrated golden wedding anniversaries during the year.

ICE CAPADES

Discount tickets are still available at Northrop ticket outlets for a special NRC night at the Ice Capades set for 5 p.m. May 3 at the Los Angeles Sports Arena.

NRC has acquired 1,000 of the best seats in the house. They normally sell for \$5, but are available through NRC for \$3.50 each.

Al Taie Receives Sloan Fellowship for MIT Study

Al Taie, director of Engineering for the Electronics Division, Navigation department, will depart Northrop in June to study advanced management techniques as a Sloan Fellow at Massachusetts Institute of Technology.

Mr. Taie will join 46 other successful candidates from a wide variety of organizational, professional and national backgrounds chosen from industry, government and medicine. He was selected from the largest number of nominations ever made in the history of the program, which dates back to 1931.



Mr. Taie

"The academic and professional qualifications of the candidates are the highest of any entering class of Sloan Fellows," said Dr. Peter P. Gil, associate dean for teaching programs.

Mr. Taie is the third Northrop candidate to enter the MIT-Sloan Program, "which is one part of Northrop's program to prepare managers for greater responsibility," said Lee Thornton, Corporate Management Development.

Northrop's first MIT-Sloan Fellow, Robert W. Young, is currently serving as manager of Quality Control for the Aircraft Division. Donald H. White, of the Aircraft Division, is currently attending the MIT program and will finish in June, entered the program from his post as director of Business Systems Management for the Aircraft Division.

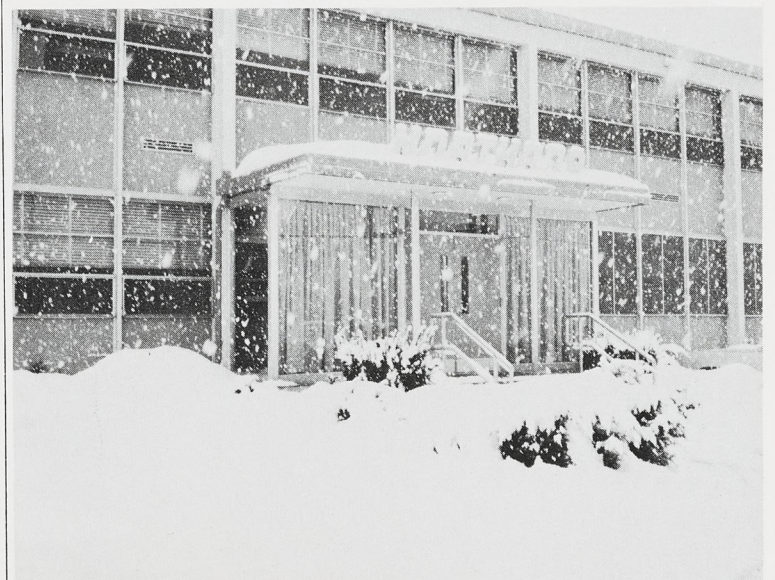
The 12-month Sloan Program,

which leads to a master of science degree in management, is designed to broaden and develop young executives for positions of leadership.

Mr. Taie was chosen as the Northrop nominee by Thomas V. Jones, president and chairman, following his recommendation by Ross F. Miller, Corporate vice president and Electronics Division general manager.

Mr. Taie joined Northrop 16 years ago as a laboratory technician after his discharge from the U.S. Navy. He attended El Camino Junior College, Long Beach City College, and is a graduate of the UCLA Executive Program.

Snow Kidding, It's Cold Outside



WHILE NORTHROP PERSONNEL on the west coast enjoy the warmth and beaches of Southern California, co-workers at the Electronics Division's Precision Products Department, Norwood, Mass., were faced recently with a snowstorm which engulfed the east coast.

The Northrop Recreation Club—Service To All

Success, Flexibility Mark 30-Year History of NRC

Thirty years ago a small group of Northrop employees met near the assembly building at Hawthorne. They sought ways to support and coordinate a growing number of "fun" activities around the plant and to encourage the formation of others.

With the full blessing of company leaders, the group continued to meet and plan until April 1940 when a formal organization, complete with elected leaders, came into being.

That this organization—Northrop Recreation Club—has survived through three decades of war and peace, the ups and downs of business cycles, expansion, and the coming and going of employees isn't really surprising.

Those farsighted early leaders created a sound foundation upon which subsequent leaders have built. That is simply that the welfare of Northrop employees, and their families, comes first. Each Northrop employee is automatically a member of NRC and his family members are eligible to enjoy all NRC benefits.

NRC is truly democratic—those who guide it are elected by those who participate in its activities voluntarily. There is no NRC membership fee. NRC funds, derived from vending machine profits, are disbursed to obtain maximum benefits to all. And NRC has always been elastic, rather than static. It is sensitive to the desires of its present members and flexible enough to expand its scope of operation to include new interests.



FACILITIES for noontime play, like this croquet course at Anaheim, were always early NRC additions as new facilities opened.



SPORTS CAR RALLIES have been popular for the past 20 years. This 1957 photo shows members of the Ventura Division Sports Car Club (then Radioplane) after a successful rallye. (Photo courtesy Jack Calder)

Although the basic philosophy behind NRC has survived these three decades, change has been the name of the game.

World War II production, for example, demanded long hours of work when NRC was young. So recreation came into the plant in the form of lunchtime War Bond shows featuring entertainment greats, talent shows—Wing Dings—starring Northrop talent, an orchestra, and many special events.

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Volleyball, table tennis, softball, even boxing, were available on-site. For the less active there were cards, chess, checkers and movies. Spectators found an outlet in supporting the Northrop Bombers, a semi-pro baseball team with winning ways.

Dances, picnics, tours and special events provided family fun in those all-to-few leisure hours.

Leadership from energetic and tireless volunteers giving freely of their own time has always been the backbone of NRC.

Thus, when Northrop expanded its business enterprises to new locations, the "transfers" always included experienced recreation leaders who quickly established NRC at the new locations. Edwards AFB, Ontario, Palmdale, Cape Canaveral, Rapid City and Alamogordo all flew the NRC banner.

Jim Celoni remembers early NRC installation ceremonies for new leaders were held in private homes.

Typical of the enthusiasm of Northrop employees going to distant places was NRC's experience at Cape Canaveral. In just a few months after initial employees arrived, NRC had 12 activities in action. A Glee Club staged a professional-like performance of "The Mikado" with Paul Ristine as lead tenor.

Jack Cushman recalls an unusual event at Rapid City, S.D., when former-Californians decided to stage a picnic in mid-January, despite temperatures of 15 below zero.

"Hot dogs coming off the broiler were cold before they could be eaten. We fished through the ice of a nearby lake. And one guy showed up with



DEDICATED LEADERS have always been the backbone of Northrop Recreation Club and this picture spans NRC's full history. Clapping hands are John Breneman, left, NRC president from 1940 to 1944, and Sisco Newton, 1970 president at the Aircraft Division. Around them are NRC presidents of years past. They are, from left, Bernie Doyle, Jim Celoni, Mr. Breneman, Bill Robusch, Mr. Newton, Fred Griffin, Dorothy Walls, Bill Wareing, Dave Carney, Fred Armstrong and Gene Boggess.

golf balls painted red which were batted about on the ice and snow. It was cold, but fun for all," Mr. Cushman said.

Out in Van Nuys, Radioplane (now the Ventura Division) had a formal recreation group going in 1954. Golf, boating, fishing, sports cars and bowling were key sports. Rex Bloom was the initial president.

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Earl Muehlenbach recalls a 20-man trek to the Colorado River for fishing that produced a lot of fun, but only five fish, over a weekend.

In the early days NRC groups served as subunits of the "parent" club at Hawthorne, each headed by a vice president of NRC. In 1960 each NRC group became autonomous. John Valeska was the first president down at Anaheim; Glenn Brannum presided at Nortronics-Hawthorne; and Ronn Wiggins headed what is now NRC's Aircraft Division council.

Each NRC organization now guides its own activities which range from archery to weightlifting. Some organizations count more than 30 individual clubs available for members. Elected officials of each NRC organization meet several times each year to coordinate those activities that bring all Northrop people together.

Northrop Night at Disneyland has drawn 16,000 people from all Northrop facilities over the past few years. Group tours are open

to all. Bowling, golf, basketball and other activities feature all-Northrop competition at times.

To name the many men and women who have served NRC groups over the years would be impossible, although their service is the key to its success. However, it would be impossible for the organizations today to be in action without such individuals as John Breneman, Roy Wolford, John Clark, Rosey Gilhousen, Harry Clark, Harry Belcher, Charlie Boyle, Don Kohler, Dorothy Walls, Dorothy Prychoda, Tom White and many others.

Today the scope of NRC inter-

est is tremendous and participation is counted in the thousands. Besides recreation promotion, NRC provides employees with outlet for tickets and special sales items, voter registration in election years, fleet discount sales, the paying of traffic citations, traveler's checks, money orders and many others.

Those who guide NRC today are acutely aware of the heritage represented in the 30 years NRC has served Northrop families. And they are geared to continuing to serve Northrop families in the future, just as those who have gone before them.



FAMILY PICNICS, above everything else, have always been among NRC's best loved and frequented events. This pie-eating contest is a contestant and crowd pleaser. NRC has sponsored a picnic in one form or another each year for more than three decades.



COMPETITION among Northrop divisions and facilities has sparked for many a year. The signs held by this group of softballers are some indication of the year this was made.

FOR CLOCK COLLECTOR

Daylight Saving Time Poses Problem

The beginning of daylight saving time April 26 will present a problem to Noble Bishop, manager, Test and Integration for Automation Systems, Electro-Mechanical Division. He and his wife, Mary, will have to change 35 clocks.

None of the clocks are less than 50 years old and the oldest is over 300. Some, because of their complicated system for striking the hours, must be changed slowly, stopping as frequently as each quarter hour for the proper number of strikes. Others are so designed that they "remember" the correct strikes no matter how the hands are

turned.

Noble and Mary Bishop's clock collecting hobby differs from most clock collectors in that they are not interested in clocks just for the sake of antiques alone.

"They must fit in with the decor of our house," Mr. Bishop said. "We want to live with our hobby. We don't want visitors to feel they have walked into a clock shop."

The result is a very select collection, with a wide range of types. They include grandfather clocks, mantle timepieces, dome clocks and others.

Nine are located in their living room. Others are found through-

out the house, even in the bathroom. Most are in working order, although Mr. Bishop only tries to keep those with strikers and chimes running. "I like to hear them strike," he says. "I don't try to keep them synchronized since that would be too much."

He does not mind the noise of thirty-odd clocks ticking away. "The house seems too quiet if they aren't ticking," he said.

He began collecting clocks 12 years ago. "I had a 1900 clock that came to my grandparents as a premium for subscribing to a Boston newspaper," he said. "When it broke I had difficulty getting it fixed, but finally found a clock collector who helped me. I got interested in clock collecting then."

He finds his clocks in antique shops, from other collectors and on vacation trips.

He reports that his major trouble in changing his clocks each spring and fall when daylight saving time begins and ends is the same as everybody else. That is, trying to remember if he should move the clock hands forward or backward. Should he make a mistake, resetting 35 clocks—especially the complicated striking systems—becomes a major operation.

* * *

BE READY FOR TIME CHANGE

While most Northrop Corporation employees will not have to contend with Mr. Bishop's problems, they still must adjust to the new time April 26.

All Northrop installations will observe the shift from Standard to Daylight Saving Time on that date. Set your clocks ahead one hour either Saturday or Sunday and you will be on time for shifts starting Monday.



LONG-TIME TIME TELLER

Noble Bishop adjusts one of his antique clocks for daylight saving time. The clock, made in London by a member of the London Clock Guild, has been telling time for 250 years.

New Insurance, Loan Policy Among Services Instituted by Credit Union

Northrop Credit Union has introduced a new service and instituted a new loan policy in its continuing effort to provide shareholders with the latest types of available services.

The new loan policy makes possible the granting of special loans secured by stock registered on the New York or American Stock Exchanges. The amount borrowed must, however, be used for purposes other than the purchase of additional stock. And a stock option loan is now also available for optionees.

In addition, the new service involves low-cost health and accident disability insurance now available. The insurance would cover loan payments to the Credit Union in the case the borrower

is disabled. This insurance is strictly voluntary and only those who request it will be included in its coverage.

Contact the Credit Union for details on these new services.

A Nice One



GEORGIA SCHORLE, wife of Northrop retiree Joe Schorle, displays her 37 1/2 pound salmon which she caught recently off the shore at Smith River, Calif. John Pawlicki, commissioner of the Northrop Surf Fishing Club, said it was the largest salmon caught by a member of the club's women's division.

Dennis Adams, plastic patternmaker, Ventura:

That's a hard question to answer. It's hard to pinpoint any one area, they can be found in all areas of the plant.



Audel Schwartz, release clerk, Electronics:

I think all the service groups that back up our design people. Of course, they (Design group), are important too because without them nobody would have anything to do. I guess when you come right down to it, everybody is important to the success of the team.

J. E. Linn, inspector, Electro-Mechanical:

I think the secretaries are the ones who deserve the most appreciation for what they do. They are there all the time doing things for you and most of the time everybody just takes them for granted.



Gladys Johnson, office clerk, Aircraft:

I admire the machinists, especially those who do precision work. To get their jobs they have to have a background of special skills. To hold it they have to produce the right thing in the right way, time and time again.

Pat Henry, Material Inventory Control, Ventura:

People who work the hardest but usually get the least amount of credit. There are a lot of people who put in more than 40 hours a week and never complain.



Lester Espy, senior designer, Electronics:

The engineers. These are the people who stay late, work hard and are always conscientious about having their work done on time.

Dorothy Bouma, senior secretary, Electro-Mechanical:

I think I would have to vote for the mail girls. They are always on the go and their work is certainly essential.



ENTER AT YOUR OWN RISK might well be the message of the breathtaking Haunted Mansion, the latest of Disneyland's many attractions.

Northrop Night At Disneyland Set For May 23, Tickets Now Available

Tickets are now on sale at all Northrop facilities for the annual NRC Night at Disneyland set for May 23 from 8:30 p.m. to 1:30 a.m.

If the response is similar to that of the past several years, tickets will be sold out far in advance. Last year 17,000 Northrop personnel and their families participated.

The \$3.95 ticket includes admission to Disneyland and unlimited use of all attractions. A new highlight at the Anaheim attraction is a haunted mansion.

As well as the usual rides and sightseeing entertainment there will also be bands, shows, and dancing offered. Parking will be free.

The park will be closed to the public that evening. Only holders of special Northrop Recreation Club tickets will be admitted. Children under three are free.

Tickets are limited and will be sold on a first-come, first-served basis. No tickets will be sold at Disneyland. So set Saturday

night, May 23, aside on your calendar—and buy those tickets soon.

Two Attend Gov't. In Action Meet

Mary Polk, standards analyst, Engineering Support and Fran Brown, support requirements analyst, Integrated Logistics Systems, Electro-Mechanical Division, were delegates from the Fullerton Business Women's Club to the California Federation of Business and Professional Women's Clubs Government in Action Conference.

The conference was held in the Hearing Room in the State Capitol in Sacramento. The legislation action adopted by the California federation consisted of:

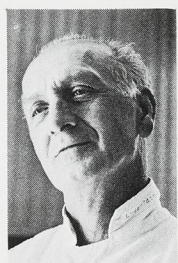
- Educational and employment opportunities;
- Tax legislation;
- And a program to improve the status of women.

The conference closed with a legislator luncheon.

WE ASKED THEM—Who Are The Unsung Heroes of Northrop?

Carl Harmon, router operator, Aircraft:

In my books it's the scribes and etchers who work in the Chem Mill. The work they do is tedious. It demands patience, accuracy and skill. And sometimes it is slow. It takes a real level-headed individual to perform consistently under such conditions.



Pat Henry, Material Inventory Control, Ventura:

People who work the hardest but usually get the least amount of credit. There are a lot of people who put in more than 40 hours a week and never complain.



Audel Schwartz, release clerk, Electronics:

I think all the service groups that back up our design people. Of course, they (Design group), are important too because without them nobody would have anything to do. I guess when you come right down to it, everybody is important to the success of the team.



J. E. Linn, inspector, Electro-Mechanical:

I think the secretaries are the ones who deserve the most appreciation for what they do. They are there all the time doing things for you and most of the time everybody just takes them for granted.



Classified

Classified ad service is provided free of charge to all Northrop personnel. Ads for agencies, commercial enterprises and private businesses are not accepted. The Northrop News reserves the right to edit or omit ads. Obtain ad form C67 from organization clerk and mail ad to Northrop News, 170, zone 62. Ads are limited to one item and one ad per person each issue. Deadline is noon Wednesday, one week before publication.

Automobiles For Sale	
Ranch Wagon, 1961 Ford, 4-dr., V-8 w/over-drive, \$350. 213-322-6655.	A
Chevrolet, 1965 Bel Air, 4-dr., std. shift, r/h, \$950. 213-675-8477.	A
Dodge, 1967 Dart, auto. trans., 4-dr., \$1,250. 213-675-0501.	A
MGB, 1969 convt., radial tires, o/drive, \$2,395. 714-870-0546.	A
Mustang, 1966, p/s, p/b, \$1,500. 213-672-7424.	A
Mustang, 1968, V-8, p/s, auto. trans., 27,000 mi., \$2,175. 714-528-8764.	A
Volkswagen, 1965, AM-FM, sunroof, 1300 eng., \$1,100. 213-645-3381.	A
Sunbeam, 1960, \$175. 213-638-0194.	A
Ford, 1961, 6-cyl., stick shift, 2-dr., \$150. 714-842-5281.	A
Mercedes Benz, 1963, 4-dr., 190 Diesel eng., 4-spd. stick, \$1,500. 213-374-0867.	A
Rambler, 1963, \$150. 213-225-3908.	A
Corvaire, 1961 Monza coupe, lge. eng., \$375. 714-826-6618.	A
Rambler, 1964 Classic 6, 4-dr., \$425. 213-833-5594.	A
Buick, 1968 Special, r/h, power, factory warranty, \$2,100. 213-374-9944.	A
Volkswagen, 1964, mags, wide ovals, 2-bbl., headers, hot ign., \$1,000. 213-834-7589.	A
Chevelle, 1966 SS 396, new tires, deep chrome rims, \$1,600. 213-779-5404.	A
Ford, 1938 coupe, V-8, 60 h.p., \$850. 714-871-1079.	A
Austin America, 1969, still under warranty, take over \$58.87 mo. pymts. or \$1,600. 213-675-7410.	A
Datsun, 1967 Model 1600, black removable h/top, \$1,250. 213-372-8078.	A
Triumph, TR-3, r/h, o/drive, curtains, cover, \$450. 213-329-4402.	A
Cougar, 1968 XR7, air, auto., stereo, p/b, p/s, \$2,450. 213-691-3684.	A
Falcon, 1963 Futura sports sedan, 4-spd., r/h, \$400. 213-391-7781.	A
Mustang, 1967 2+2 Fastback, 4-spd., 289 cu. eng., power d/brakes, p/s, \$1,700. 213-532-6935, 213-329-4009.	A
Pontiac, 1966 GTO, 4-spd., stereo tape, \$1,600. 213-461-2392.	A
Falcon, 1964 Futura, 46,000 mi., \$795. 213-370-6750.	A
Rambler, 1964 American convt., r/h, auto. trans., \$400. 213-377-4127.	A
Ford, 1966 Galaxie 500, 2-dr. h/top, auto. trans., radio, \$1,150. 714-826-6027.	A
Pickup Truck, 1929 Model A, \$500. 213-532-2853.	A
Austin America, 1969, r/h, auto. trans., 8,500 mi., \$1,200. 213-374-5851.	A
Volkswagen, 1967, radio, \$1,000. 213-268-9608 after 6 p.m.	A
Pontiac, 1966 LeMans, V-8, 4-bbl., headers, posit., 4-spd. Hurst, American mags, p/s, spkrs. for tape deck, eng. rebilt. throughout, \$800. 805-482-9635.	A
Volkswagen, 1966, w/sunroof, radio, \$1,100. 213-545-3349, 213-676-5219.	A
Pickup, 1963 GMC, 1/2-ton long bed, lge. tires, \$675. 213-346-7049.	A
Continental, 1967, 2-dr., full power, a/c, \$2,795. 213-323-5640.	A
Station Wagon, 1957 Ford, new paint & brakes, \$425. 213-675-4749.	A
Chevrolet, 1969 Chevelle SS 396, 350 h.p., 4-spd., p/s, p/b, 4.11 posi., many extras, \$2,800. 213-545-2180.	A
T-Bird, 1964, \$650; Oldsmobile, 1965 Delta 88, \$895; Pontiac, 1967 Bonneville, \$1,345. minimum bids, Credit Union ext. 1117.	A
Dodge, 1963 Dart, 2-dr. h/top G.T., \$550. 213-370-7130.	A
Mercury, 1960 Montclair, \$325. 213-323-2289.	A
Porsche, 1967 912, 5-spd., AM-FM radio, chrome whls., \$4,350. 213-545-6132.	A
Plymouth, 1968 Roadrunner, 383 4-spd., posit., \$1,995. 805-498-1756.	A
MGA, 1958 convt., eng. o/hailed, new clutch, \$700. 213-423-1363.	A
Volkswagen, 1964, new eng. & clutch, \$800. 213-371-5646.	A
Household Items For Sale	
Crib, full size, maple finish, bumper guard & foam mattress, \$27.50. 213-670-5927.	B
Refrigerator, Admiral, copertone, frost-free, freezer on bottom, \$95. 213-635-7942.	B
Crib, mattress, \$20. 213-346-7829.	B
Freezer, 17 cu. ft. Kenmore, copper, upright, 3 yrs. old, \$175. 213-327-1975.	B
Rockler, recliner, Early American, \$30. 213-541-1568.	B
Dryer, Sears elec., white, \$50. 213-373-5223.	B
Box Springs, twin size, innerspring mattress, w/metal frame stand, \$25. 213-377-6352.	B

Household Items For Sale	
Bedroom Set, mahogany, dble. bed, triple dresser & mirror, 2 night stands, chest-on-chest of drwr., orthopedic mattress & box spring, \$250. 213-679-5195.	B
Washer, RCA Whirlpool, 1 yr. old, avocado, \$80. 213-677-0807.	B
Dining Room Set, 6-pc. Danish modern, \$100. 213-675-7050.	B
Dryer, Westinghouse elec., 25" space saver, \$25. 213-377-7913.	B
Lavatory, 18-20 vintage china w/cabinet below, complete fittings, \$15. 213-328-0887.	B
Crib, Edison, mattress, natural birch color, cane trim, \$23. 213-883-4471.	B
Bedroom Set, heather walnut, 4-pc., \$150. 213-861-6404.	B
Hope Chest, black leather uphol. top, walnut, Lane, \$65. 213-376-5551.	B
Knitting Machine, Sears dble. bed, w/cabinet & instructions, \$250. 213-379-7716.	B
Range, O'Keefe & Merritt Portrait 30", gas, 3 yrs. old, \$90. 213-679-7873.	B
Hi-Chair, no tray, \$6.50. 213-376-4831.	B
Stove, gas, Western Holly, top griddle, rotisserie broil oven, \$50. 213-644-8308.	B
Toaster-Broiler Oven, 2 mos. old, 5 yr. guarantee, stainless steel, \$12. 213-645-7972.	B
Miscellaneous For Sale	
Piano, Bradbury upright concert grand, recently refinished in pecan, \$235. 213-696-7529.	C
Acreage, 2 1/2 acre parcel, Lancaster, terms, \$9,500. 714-968-2780.	C
Kittens, Siamese sealpoint, after May 1, \$10 ea., \$13-756-2842.	C
Dresses, ladies, suits & capris, sizes 8-22, \$3-\$10. 213-679-0835.	C
House, 3-bdrm., new cpt., lge. backyard, 238th & Crenshaw, assume low int. loan, \$24,500. 213-326-8668.	C
Boat, 22' Owens, new 283 marine Chris Craft eng., all new driving gear, instruments, wiring, access. \$2,500. 213-378-2856.	C
Surfboard, 8'8" Lizardi pintail, \$85. 213-323-1026.	C
Motorcycle, 1966 Honda S-90, street/trail, \$165. 213-324-7257.	C
Sailboat, 12' Aqua Cat, custom trailer, motor mount, access., seldom used, \$695. 213-375-7265.	C
Camera, Graflex, twin lens reflex, f3.5 lens, case, flash unit, seldom used, \$45. 714-541-9796.	C
House, 3-bdrm., 2 baths, f/place, bitins, covered patio, cpts., dps., new paint, 2 blks. to schools, G.I. appraised, \$29,500. 213-835-5052.	C
Golf Clubs, bag, never used, complete set, \$120. 213-545-3948.	C
Pool Table, 8' & 5x9' ping pong table, \$95. 213-320-3445.	C
Surfboard, 9'1" Jacobs, pintail, narrow rails, \$50. 213-837-3671.	C
Tools, complete set, tool & die maker's, jig & fixture bldg. set, rollaway, tool chests, \$300. 213-675-1228.	C
Acreage, 1 acre, w/cabin, fishing & hunting nearby, \$5,995. 213-862-3027.	C
House, 3-bdrm., 2 baths, bitins, incl. refrig., cpts., dps., lge. fam. rm. w/wet bar, f/place, dble. gar., blk. fence, pool, patio, 5 min. from Northrop near Hawthorne High, \$35,000. 213-644-6270.	C
Table Lighters, Bronica, butane, gold, silver or wood, \$13 ea. 213-674-8088.	C
Tire, 5 8.85x14, Sears Silent Guard, used 2,500, \$80. 213-371-9966.	C
Motorcycle, 1966 BSA 650, 14,500 actual mi., many extras, \$775. 213-374-6878.	C
Trailer, 1967 15 1/2' Santa Fe, brakes, rock shield, \$795. 213-673-4598.	C
Beer Bar, portable, coppertone, all access., CO2 tank, reg. valve, mugs & pony keg, \$115. 213-644-2130.	C
TV, General Electric, 14" portable, stand, \$50. 213-679-6247.	C
Lot, 1/2 acre, bldg. site on Foothill Dr., Agoura, horses O.K., city water, elec. & phone, \$8,500. 213-783-8271.	C
Wheel Covers, deluxe, 4 15" Ford type, \$6. 213-375-8536.	C
Locomotive, H.O., B&O class EM-1-2-8-8-4 Baldwin articulated, \$50. 213-833-3402.	C
Pups, AKC reg. beagle, 4 fem., 3 males, show quality, \$50 ea. 213-762-5944.	C
Camera, Polaroid Model 250, tripod, timer, misc. lens attach., \$75. 213-644-1720.	C
Bicycle, girl's 26", \$6. 213-679-1631.	C
Cabin Cruiser, 17' Hydroskiff, 80 h.p. Mercury motor, radio, stove & ref., lge. whl. trailer, \$995. 213-679-1550.	C
Bathroom Sink, faucets & mounting brackets, \$10. 213-374-4703.	C
Wheels, from '66 Mustang 14"x5", 5 bolt, w/valve stems, \$4 ea. 213-375-5838.	C
Piano, upright, restyled by Harmony, \$200. 213-676-8821.	C
Piano, spinet, bench, mahogany finish, \$295. 213-534-2570.	C
Mags, American, alum., Chev., 14", \$115. 213-323-0891.	C
Phonograph, Victor antique, \$125. 213-324-9769.	C
Acreage, 5 acres in Adelanto, utilities, \$400 dn., \$8,250. 213-378-1026.	C
Luggage, ladies' white Samsonite wardrobe & w/end suitcases, \$25. 213-346-3751.	C
TV, colored Admiral, 4 yrs. old, \$135. 213-323-0985.	C
Fishing Boat, 12', alum., 1 yr. old, \$150. 714-545-2035.	C

Miscellaneous For Sale	
Boat, 14 Alumacraft w/quick & easy loader, \$250. 213-867-8873.	C
Units, 6, on 1/2 acre, o/\$500 a mo. income, close to Northrop, \$59,000. 213-675-1776.	C
Transmission, auto., 1957-59 Chev., Powerglide, \$20. 213-672-7683.	C
Console, 1968 G.E. stereo, AM-FM solid state transistor, Spanish Mediterranean, \$170. 213-676-0662.	C
Surfboard, 8' Jacobs, \$65. 213-377-2160.	C
Tire, new Goodyear, power cushion b/wall tubeless, 6.95-14, \$15. 213-754-7947.	C
Tape Player, Muntz 4-track stereo, \$35. 213-676-5141.	C
Drafting Machine, Bruning, left-hand custom mod., deluxe clear plastic scales & instruction book, \$78. 213-242-9723.	C
Motor, Reo marine inbd., 1 1/4 h.p. trolling, kit of access. for boat install., \$60. 213-374-5935.	C
Cemetery Lots, 4, Glen Haven Memorial, Sunnyslope sec., Plot 194, \$200 ea. or \$750 for 4. 213-324-7442.	C
Home, corner, 2-story, 4-bdrm., 2 baths, enc. patio, lge. yard w/boat or trailer gate, f/place, cpts., dps., assume FHA or new terms, \$32,500. 714-968-5343.	C
House, 2-bdrm., 1 bath, R-2 lot 50' x 150', fenced yd., assume 5 3/4% loan, will carry 2nd, \$24,000. 213-379-9921.	C
Drum Set, 4-pc., snare, side tom, other access., \$85. 213-939-3526.	C
Bowling Ball, Brunswick Black Beauty #202 S12, ladies, w/carrying case, \$5. 213-541-3000.	C
Motorcycle, Honda CM 91, 90 cc, semi-auto. trans., \$200. 213-323-6717.	C
Surfboard, Bing Noserider, \$45. 714-671-5070.	C
Movie Camera, 8mm Bolex, Kodak projector, other equipment, \$40. 213-377-8731.	C
Wheels, 2 chrome reverse, for Chevrolet, 6x14, \$10 ea. 805-498-8877.	C
Diamond, 1/3 carat, \$190. 714-879-9945.	C
Lots, 2, 2 1/2 acres ea., in Palmdale, \$32,000 & \$25,000. Box 701.	C
Boat, 15' Glastron, fiberglass, Walstron tilted trailer, ski equipment, 50 h.p. Evinrude, spare whl., \$1,000. 213-422-7766.	C
Lawnmower, Sears rotary-type, 2 1/4 h.p., \$10. 213-374-5728.	C
Motorcycle, 1966 Jawa, CZ, 125 cc, \$195. 714-494-6940.	C
Pickup Bed, for 1966 Ford, long, wide, \$100. 213-596-3691.	C
Boat, 8' fiberglass w/deck, up to 12 h.p. motor, \$75. 213-378-7642.	C
Lawnmower, Sears, gas, 3 h.p., ratchet starter, grass catcher, rotary-type, \$40. 213-326-7232.	C
Boat, custom built 14' Fashion Craft, trailer, \$250. 714-962-3961.	C
Dog, miniature dachshund, registered, male, \$35. 213-671-8672.	C
Juke Box, stereo, 200 play ami, \$190. 213-372-1386.	C
Pups, German shorthaired pointer, \$50. 213-833-3788.	C
Autoette, 1954 elec., sedan, incl. batteries & charger, \$200. 213-679-4913.	C
Acreage, 2.5 acres, from Spanish Land Grant, Rancho Carrillo, \$14,500. 714-528-4553.	C
Sailing Pram, 8' sabot, \$225. 714-539-2098.	C
Freight Train Outfit, H.O., lighted town, landscaped terrain, full remote control, \$35. 714-637-9353.	C
Ski Rack, 2 Barecraft, for trunk deck, \$10. 213-373-1395.	C
Pool Table, reg. size, Sears George-Town, maple finish, beige felt, 2 cues, balls, bridge & ball rack, 4 mos. old, \$250. 213-581-5208.	C
Radio Control Set, orbit, 4-channel, transmitter, receiver, 4 servos, batt., other access., \$315. 213-772-1789.	C
Wanted to Buy	
Outboard Motor, 3 to 5 h.p., good condition. 213-645-5786.	D
Books, used, children's, for 2-6 yr. olds, Dr. Seuss or any other. 213-676-3050.	D
BB Gun Rifle, working or not, will pay \$2. 714-637-4723.	D
Body for Karmann Ghia in good condition. 213-324-2926.	D
Freezer, old, not in use for instructional purposes, removal at my expense. 213-368-1269.	D
Free (To Be Given Away)	
Springs, for twin size bed. 213-534-5498.	F
Dog, stray, small, brown, short hair, good around children. 213-457-9186.	F
Kittens, 6 wks. old, need home. 213-833-6135.	F
Rentals Offered	
Chalet, Lake Arrowhead No. Shore, furn., 3-bdrm., 2-baths, lake view, avail. June 15 to Sept. 1, \$150 wk., \$500 mo. 213-377-5936.	G
Cabin Cruiser, 32' Channel islands Marina, licensed skipper, you provide gas & insurance, \$80 day. 805-498-4237.	G
Cabins, Idyllwild, 1 & 2 bdrm., stream, patio, f/place, \$70-\$90 wk., \$30-\$35 w/end, 213-868-8040.	G
Cabin, Big Bear Lake, \$30 w/end. 213-867-0662.	G
Duplex, 2-bdrm., bitins, patio, cpts., dps., enc. yard, gar., King Harbor, \$185 mo. 213-379-4476.	G
Cabins, Lake Gregory & Crestline, sleeps 6, \$25 w/ends; \$60 wk. 213-391-2040.	G
Bachelor Apt, lge., completely furn., 2 blocks from beach, utils. paid, Manhattan Beach, \$100 mo. on lease. 213-545-3941.	G

EDITOR'S NOTEBOOK

Cecil Callaway, Aircraft Division Employee Suggestion Plan senior analyst, deals constantly in statistics. His day-to-day handling of cost reduction activities involve many figures. As a member of the board of directors and statistical chairman for the National Association of Suggestion Systems he compiles annual reports on the activities of more than eight million people across the nation. More statistics.

However, Mr. Callaway is stumped in calculating the odds on a recent occurrence. J. M. Lynn, a receiving clerk in Warehousing, earned a \$10 Employee Suggestion award for a new packaging method. When his suggestion was processed, it was discovered his man number and the suggestion number were identical. Northrop man numbers are assigned on a random basis. Suggestion Plan serial numbers are pre-printed on work folders and assigned as suggestions are received. The odds involved in their being the same are phenomenal. "You figure them, I can't," says Mr. Callaway.

* * *

Northrop News staffers continue to note an upsurge of interest in things of an historical nature. Employees have shown a keen interest in the News' special features on historic Northrop aircraft. And we have reported on the collectors of antique spinning wheels, clocks, automobiles, stamps, coins and other miscellaneous items. Age doesn't seem to be a factor in this interest.

For example, a Northrop son recently spent the better part of a day searching old copies of the News for historic information. He is Walter D. Clark, 22, son of Walter M. Clark, a veteran Northrop engineer now working at the Electro-Mechanical Division. Young Walt Clark is a senior physics major at the University of California at Irvine. Since his dad has worked for Northrop throughout his lifetime, Walt has continuously been subjected to Northrop's history and products.

His special area of interest is Northrop's association with the flying wing. He has collected about 130 photographs and a 12-inch stack of data on flying wings of every type. In addition, he has talked with many, many present and former Northrop employees, including John K. Northrop.

Walt thinks perhaps he has chronicled just about all the available data that was recorded on this historic Northrop product. But now he is curious about other elements, what he describes as the "behind-the-scenes" aspects of this particular type of aircraft. He reasons he is pretty well-versed in the whats and hows, but now needs to know some of the whys. Northrop employees interested in discussing flying wings with young Walt Clark can reach him at his parent's home in the South Bay on weekends. The number is 370-7092.

* * *

Stuart Tanner, Northrop Data Processing, reports that his son, Tom, has sold his automobile. Northrop News reported the unprovoked attack on Tom Tanner by two young men armed with a shotgun which left his right arm all but useless. Unable to utilize his stick-shift car, young Tanner offered it for sale, hoping to buy another with automatic transmission. He has sold the old car and bought one he can drive to and from school.

There is an interesting follow-on to this incident. NDP friends of Mr. Tanner's are well aware that his prompt action and knowledge of first aid following the attack probably saved Tom Tanner's life. Many have wondered what they would have done in the situation. Encouraged by Paul Weirk and coordinated by Bill Hayman, NDP people have set up and are now attending a first aid training course in their area during lunch periods. Fire Inspector R. C. Wells is the course instructor. It started this week and runs through July 2 at which time graduates will receive Red Cross First Aid Certificates.

Rentals Offered	Personals
<p>Condominium Unit, in Mammoth Lakes, accommodates 4, living rm., w/fireplace, complete kitchen, sep. bdrm., sauna, \$25 night for 2, \$30 night for 4. 213-375-2622.</p> <p>House, 4-bdrm., 2 baths, unfurn., 2 yrs. old, bitins, cpts., dps., dble. gar. w/elec. door opener, water pd., 3 mi. from Elec. Mech. Anaheim, \$300 mo. 714-871-7625.</p> <p>Chalet, 3-bdrm., 2 baths, completely furn., sleeps 10, Lake Arrowhead, \$150 wk., \$75 w/end, i/o boat & ski equipment avail. \$5 hr. 714-528-2303.</p> <p>Vacation House, 2-bdrm., pool, adults only, Palm Springs area, completely furn., \$150 wk. 213-567-6260.</p>	<p>I would like to take this means to thank all my friends for the luncheons & party at the time of my retirement & many thanks for the wonderful gifts. PEARL L. RAY.</p> <p>I wish to thank all my friends & co-workers at the Santa Fe facility for the lovely gifts & retirement party. Your thoughtfulness was sincerely appreciated. FRANK W. MELTON.</p> <p>We would like to thank all the employees of Northrop for their comforting expressions of sympathy at the passing of Alonzo R. Johnston. MARY V. & ALAN JOHNSTON.</p> <p>Many thanks to my good friends who contributed to my retirement party. Thank you, again, for your many years of kindness. MILT BUSTAMANTE.</p> <p>No words can truly express our appreciation for the kindness shown toward us by George's friends & co-workers. We now know how much Northrop meant to him & can honestly see why he felt this way. Thank you from the bottom of our hearts. JULIE, BECKY, DANNY & DENNIS BALDWIN.</p>
For Sale or Trade	Rides and Riders
<p>Engine, for Sprite, needs crankshaft, trans. & parts, \$25 or trade for military-type rifle. 213-635-6134.</p> <p>Range, Wedgewood, w/grill, \$47 or trade for tools. 213-532-1824.</p> <p>Volkswagen, 1968, auto. stick-shift, a/c, radio, 20,000 mi., \$1,875 or take older domestic car as partial trade. Box 702.</p>	<p>Rides Wanted</p> <p>7 a.m. — 3:42 p.m.</p> <p>Southern Ave. near Santa Fe, South Gate. Vera Heffernan, Aircraiv ext. 2581, 213-564-1988.</p>



HONORED FOR PERFECT ATTENDANCE
With Supervisor Joe Pulver are Jake Taddeo, left, and Jerry Brower.

Eight Venturans Honored For Perfect Work Records

Jake Taddeo likes his work at the Ventura Division. He likes it so well he has only been absent one day because of illness in the 12 years he has been on the Northrop payroll.

VETERANS

(Continued from page 1)

drone line. He is now a tool and die maker.

Hank Gardner is another Radioplane veteran. He began as a final assembler on the OQ-19 drone in Van Nuys. Today he is a structural assembler on the T-38 ejection seats.

Alexander (Scotty) Blackwood was hired as a welder 20 years ago at Radioplane. And, although he didn't hold a welding torch for a year, he's been welding ever since.

Receiving 15-year pins were Marvin Hinze, and Jack Christian, Assembly Planning branch; Richard Kellner, Drawing Check branch; and Robert Harris, Project Planning and Industrial Engineering group.

SECRETARIES SET 'UP IN 70' EVENT

Many Ventura Division executives and their secretaries are expected to attend the "Up in 70" seminar/executive night sponsored by the Los Robles and satellite chapters of the National Secretaries Association April 25.

Dr. W. C. Himstreet of the USC School of Business, will be featured speaker at the dinner.

Mr. Taddeo and seven other people from Production Operations recently received a free steak luncheon in the cafeteria for having perfect attendance in 1968 or 1969 or both years.

Jerry Brower of Freight Handling and Mr. Taddeo didn't miss a day in either year.

Others honored for perfect attendance in one of the past two years were Vera Bailie, KD2R-5 Final Assembly; Robert Georgia, 747 Final Assembly; Andy Mertus, Machine Shop; Fred Steiger, Metal Shop; Verne Turner, Process and Paint Shop; and Virgil Barstad of 747 Stores.

Mr. Taddeo is unique in another way. His shift is from noon to 8:30 p.m. He handles after-hour deliveries and assorted odd but necessary jobs.

"If I have a cold or something I figure I won't get any better lying around in bed," he told the Northrop News. "Besides, I'd much rather go to work. I love my job."

Each of the eight perfect attendees received an Honor Roll certificate citing them for their conscientiousness. Receiving honorable mention certificates for missing less than one day were:

1968-69: Ray Borzage and George Gaudry.

1968: Freddy Berumen, Walter Perkins and Margaret Novak.

1969: Leon Barnes, Aldean Holman, Harold Schuman, Marvin Shered, Russell Thomas, Verne Turner and Hubert Wilson.

VARIETY OF STYLES

Shoemobile Now on Regular Schedule

Ventura Division personnel now have their own industrial shoemobile. A shoemobile is now coming on a regular basis to display its wares at the division.

The first visit of the Knapp Shoe Company's mobile van took place March 25 and another visit is planned for April 15. Subse-

quent visiting dates will be announced.

Steel-capped safety shoes and other shoes for both men and women may be selected from the shoemobile and could be purchased through payroll deduction based on a maximum purchase of \$25. Payroll deductions will be \$5 per week.

The shoemobile is a complete-

ly outfitted trailer with a wide variety of styles. They range from popular models to boots. Purchases may be ordered for delivery to the customer at the division.

Industrial Relations has arranged the shoemobile visits. Additional information may be obtained from Al Robinson, Training administrator, ext. 1180.

Mobile Trade Van Scheduled to Visit Division May 4

A mobile trade show known as the Design News Caravan will visit the Ventura Division May 4. The large air-conditioned trailer, sponsored by Design News Magazine, features new products and ideas from eight different companies.

Representatives discussing their products will come from Form-sprag, Groov-Pin Corp., Honeywell, Inc., ITT General Controls Co., NASA Headquarters, Republic Steel Corp., Standard Pressed Steel, and Warner Electric Brake & Clutch.

The display van will be parked from 9 a.m. to noon in front of the Engineering lobby. Displays will be of interest to engineers and purchasing personnel.

Boy Gets Lost In Wide Open Spaces of 747

Northrop employees who build components for the Boeing 747 superjet are aware of its tremendous size, although most would have to stretch their imagination to cover a recently reported incident.

On a Trans World Airlines Los Angeles to New York flight passengers silenced their talk when a sober-voiced passenger service agent clicked on the intercom and asked for attention.

"We have a slight problem here," he said. "There is a little boy here who is lost, and so upset he can't remember his name. Would his parents please reclaim him?"

There's never been a reported case of a lost person aboard a plane before... but then, there's never been an airplane quite like the 747 before either.



INSPECTING THE WARES
Jess Groomer shows shoes to Maria Gaona, left, and Virginia Gari-baldi.

Chapman's Son Named Division Soldier of Week by Army Unit

The son of Venturan E. Blair Chapman has been selected U.S. Army Fourth Infantry Division Soldier of the Week in one of the major Army units currently stationed in Vietnam.

Pfc. James Chapman, 21, was selected on the basis of alertness, initiative, knowledge of job, and courage, according to a letter to Mr. Chapman from Maj. Gen. Glenn D. Walker, commanding general of the 4th Infantry Division.

The letter said Mr. Chapman's

son "is truly a living symbol of America's youth." It also noted that Pfc. Chapman would receive the Army Commendation Medal and accompany the general on an inspection of divisional units.

Pfc. Chapman, the eldest of four Chapman children, attended Columbia University on a Northrop-sponsored National Merit Scholarship. He intends to continue his education after completing his Army service. He is a communications specialist with the 4th Infantry at An Khe, South Vietnam.

Mr. Chapman is a 17-year Northrop employee. He is a foreman in the Boeing 747 Final Assembly unit.



Pfc. Chapman

ENCORE PROVIDES CHANCE TO SEE '70 ART SHOW AGAIN

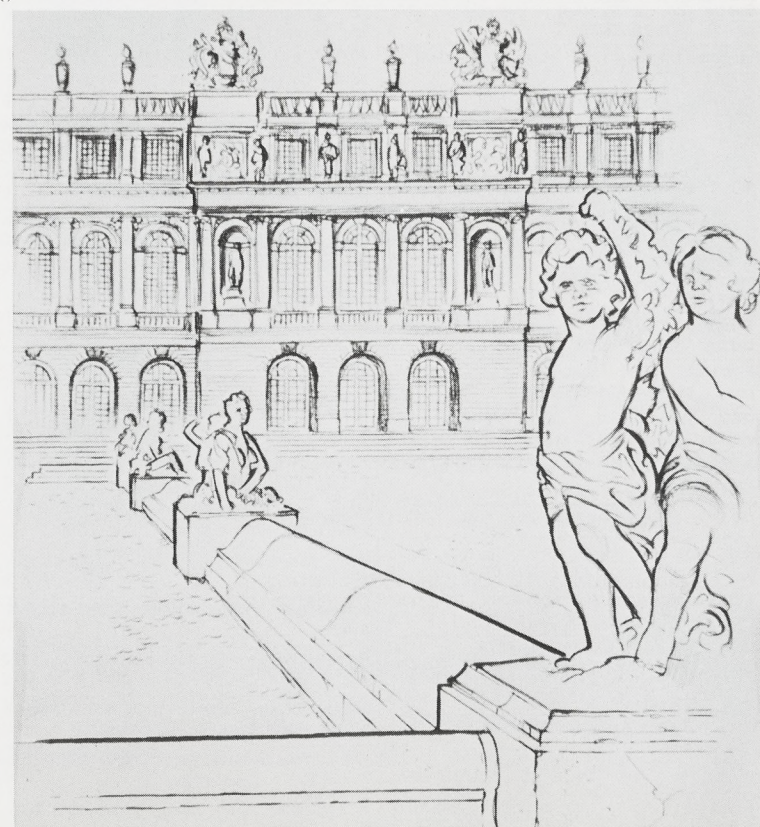
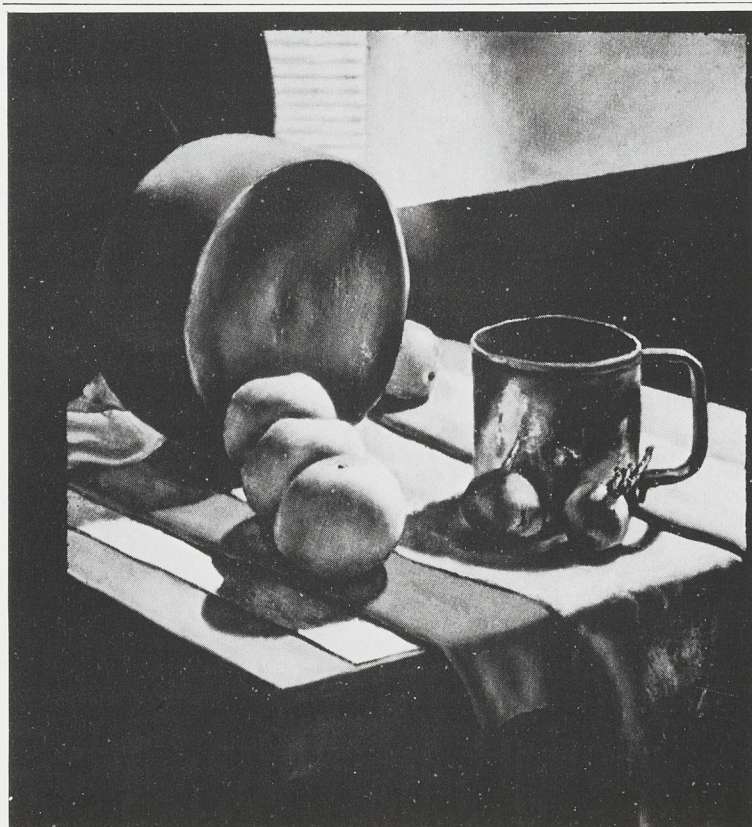
Ventura personnel who missed the Arts & Graphics branch's 1970 art show will have another chance to see it.

D. E. (Curly) Martin, Arts and Graphics chief, has announced the show will be given again April 27-30 from 11:30 a.m. to 1 p.m. in the Assembly Room.

Art Works On Display

The colored slide presentation covers three viewing screens simultaneously. It displays the various works of Ventura artists and photographers in Mr. Martin's branch.

Venturans who missed the earlier showings are urged to attend. Response to the show was gratifying, Mr. Martin said.



MILLIONS WATCH PERFECT APOLLO 13 SPLASHDOWN

All eyes were on Apollo Friday morning, April 17, as the jinxed Apollo 13 trio streaked back from a trip marred by the first outer space abort in NASA history.

The always dramatic re-entry and landing sequence took on added tension this time. Experiencing the most tension were personnel at the Ventura Division where the parachute landing systems for America's astronauts are produced.

Several anomalies had already occurred in Apollo 13 and the parachute landing system was the last major subsystem which could have resulted in tragedy for frustrated would-be moonwalkers Jim Lovell, Fred

Haise, and command module pilot Jim Swigert.

Ventura personnel watched the splashdown on strategically located televisions at the division. "We are now in radio blackout," said the TV announcer as the spacecraft entered the earth's atmosphere at 25,000-plus miles per hour. After an agonizing 80 silent seconds the words "O.K., Joe" crackled over the radio telling the world that the first two parachutes of the eight-chute system had properly deployed at 25,000 feet.

"The drogue parachutes, which stabilize the spacecraft and slow it down, are now open," the announcer told Venturans who breathed a deep sigh

of pride and relief. Soon the pilot chutes popped out followed by the three orange and white main parachutes. Millions of around-the-world television viewers saw the event.

The Ventura Division-built Apollo Earth Landing System had performed 100 per cent again. It was the 23rd successful exercise for the Northrop-produced parachute system.

In Newbury Park the youngsters at Timber School rang their 50-year-old school bell to signal the safe return of the astronauts through the skill of their Northrop neighbors. The bell hadn't been rung in several years.

NORTHROP NEWS

VENTURA DIVISION

Northrop Corporation, Beverly Hills, California

Vol. 28, No. 8

April 29, 1970

New MQM Production Contract For 223 Drones, \$2.4 Million

The U.S. Naval Air Systems Command has announced award of a \$2,425,000 contract to the Ventura Division for continued production of MQM-74A aerial target drones.

More than 1,000 of the targets have now been ordered by the Navy with this fourth production contract. First deliveries began in mid-1968 and the schedule

now calls for deliveries through July 1971.

The ground-controlled MQM-74A is used as a training target for Navy anti-aircraft gunnery crews at Norfolk, Va. and San Diego. Evaluation and testing takes place at Pt. Mugu.

Known internationally as the Chukar, the MQM-74A is ground-launched and simulates fighter

aircraft in flight. The target can fly up to 460 miles per hour. It can be recovered and re-used.

The jet-powered MQM-74A is the latest in a series of 65,000 target aircraft produced by the Ventura Division and its predecessor, Radioplane, since the early 1940's.

John D.C. Roach Is Panelist for National Meeting

John D. C. Roach, director of Contract Accounting and Management Information Systems at the Ventura Division, was a featured speaker at a one-day conference sponsored by the National Industrial Conference Board this week.

Mr. Roach discussed considerations in managing capital expenditures as part of a four-man panel on "Financial Control Techniques."

The entire conference, "Financial Management for the 1970's," at the Century Plaza Hotel April 29 in Los Angeles, heard financial and monetary authorities from business, government and the universities.

J.A. Youngsters Earn Top Honors As State Scholars

Four student participants in the Northrop-counseled Junior Achievement company CONICO have received academic honors from the State of California.

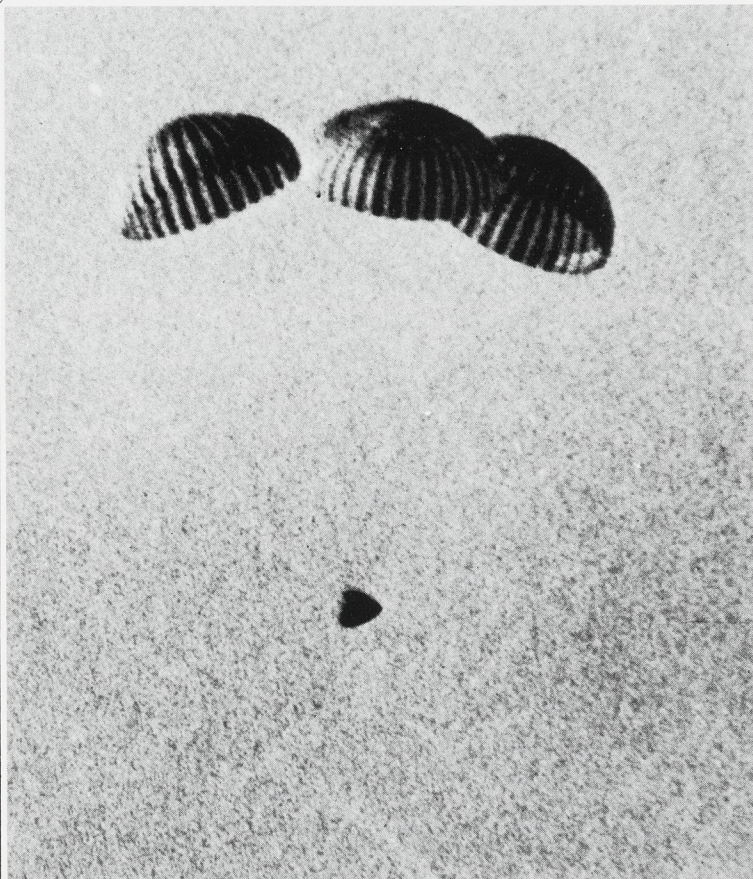
Thousand Oaks High School students Jeff Benesch, Rick Massey, Vicki Rice and Mike Shima will receive full tuition and fees as "state scholars" if they attend state colleges and universities next fall.

The California State Scholarship and Loan Commission named 6,203 recipients as "state scholars" from more than 33,000 applications.

TIPTON IS CHAIRMAN

Recently named chairman of the California Lutheran College Community Affairs Council was Frank T. Tipton, assistant to the general manager of the Ventura Division.

The council explores new methods for expanding the Thousand Oaks college's services to the community.



HEADED FOR A PERFECT LANDING
Ventura Division-produced landing system cushions Apollo 13 landing.
(UPI photo)

Ventura Suggesters Reap Awards in Triple Figures

Sixteen Ventura personnel share \$1,027 in the latest announcement of Suggestion Award Program cash recipients.

At the top of the list is Danny Beltran of Plastic Fabrication. Mr. Beltran received the largest award, \$219, for suggestion and

designing a more practical oven table for use in curing plastic parts.

He received another \$26 for combining efforts with Ed Zurawski in suggesting use of a band saw to cut felt hair bleeder strips. Mr. Zurawski also was awarded \$26.

Mr. Beltran

Dennis Gage received \$212 for

eliminating surplus paperwork in the 747 program. Mr. Gage works in Manufacturing Engineering Planning-Plastics.

Another recipient of a good sized-check was James Kearney of the Plumbing subunit. He got \$195 for an idea to remove bleeder rope from tooling.

Jimmie Bamburg received \$109 for coming up with a new type of handling rack; Marie Bartz was awarded \$81 for suggesting a shop aid in MQM production; and Thomas Schlender earned a \$50 bonus for another paperwork reduction idea.

Other recipients are Donald Ching, \$22; Ken Dilbeck, \$14; Russell A. Opfer, \$13; and J. B. Smith, Ruth Bolin, Jack Landis, Daniel Sullivan, Walt Packert and A. P. Douglas, \$10 each.



GETTING A HEAD START ON BONDS

Bonds rep Bambi Perfect signs up Earl Everley, left, and David Parker.



READY FOR SECRETARIES WEEK

Jan Catalano, local NSA 'week' chairman, readies display—see page 6.

Discussing The F-5



ASSISTANT SECRETARY of Defense for Public Affairs, Brig. General Daniel "Chappie" James, Jr., USAF, visited Northrop this month for briefings and a plant tour. Northrop's L. F. Begin uses models of Northrop aircraft to discuss company's capabilities in producing fighter aircraft.

Passengers Prefer 747, Boeing Leader Reports

A report from William M. Allen, chairman of the board of The Boeing Company, to Boeing shareholders related to the 747 program contains information of special interest to Northrop employees.

"On balance, in-service experience with the 747 has been most encouraging to our customers and to ourselves," Mr. Allen said. "We thought you would like to know that the airplane is fulfilling our expectations."

Mr. Allen reported that pilots like the 747's stability and handling characteristics—they call it a "pilot's airplane." Maintenance

crews have had little difficulty keeping their schedules of routine service.

He added that plaudits from passengers are especially encouraging. Passengers prefer it to any other jet aircraft. They single out its spaciousness and stability in flight as key factors. One housewife went further to call it "an airplane for people who don't like to fly."

Mr. Allen noted that passenger loading and unloading is being accomplished faster than expected with baggage delivery "as good as or better" than service from other types of aircraft.

In a different, but related, report recently E. H. Boullioun, vice president-general manager of Boeing's Commercial Airplane Group, pointed out:

Revenue passenger miles for the air transport industry is expected to rise to 800 billion by 1980, compared to 200 billion forecast for 1970.

"For each one billion revenue passenger miles the airlines would require 30 twin-engine jetliners such as the 737 or seven 707 intercontinentals. But the same amount of work could be performed by just three Boeing 747's," Mr. Boullioun said.

'Welcome to Our World'



MAYOR RABBIT and his beautiful baby dolls are all prepped to perform just for Northrop families at 5 p.m., May 3 at the Los Angeles Sports Arena. This is just one of the exciting Ice Capades acts to be presented. Tickets regularly selling for \$5 are available to Northrop employees at regular ticket outlets for just \$3.50 each. But the supply is limited, so act now.

NASA Presents Twenty-Seven Ideas Designed to Reduce Costs

Cost-conscious Northrop personnel can take a few economical hints from NASA's "Cost Reduction Shopping List." Twenty-seven ideas will be presented this week and another 27 will be listed in the edition of the News.

Reduce the distribution of documents and reports.

Combine or eliminate documents and reports.

Turn in unneeded equipment and supplies.

Clean out and turn in file cabinets.

Eliminate forms.

Increase your productivity.

Eliminate some travel require-

ments.

Save on mailing costs.

Use surplus instead of new materials.

Eliminate telephones.

Reduce the use of electricity and other utilities.

Make a change in design that produces savings.

Value improve some specifications.

Reduce the cost of processing purchase orders.

Find and use less costly vendors.

Substitute satisfactory lower cost items.

Reduce equipment rental costs.

Help reduce overtime.

Eliminate unnecessary cleaning requirements.

Schedule your work to improve efficiency.

Submit well thought-out employee suggestions.

Save your boss some time by doing a complete job.

Reduce some requirements for testing.

Relax a "too tight" tolerance or "too bright" finish.

Reduce contractor's costs.

Reduce shipping cost—consolidate shipments.

Reduce reproduction requirements.

SST Displays The Shape of The Future



FULL-SCALE MOCKUP of the U.S. supersonic transport is taking shape at The Boeing Company. The 286-foot-long fuselage of the SST is being built with the same section breaks and critical dimensions to be used on two prototypes to be built for flight testing. Northrop will build two forward fuselage sections for the SST, including most of the forward cabin area exclusive of the articulated nose.

SHE DRIVES IT

Kathy Takes Bus Through College

Most college students help to pay their expenses by working part-time. Kathy Salisbury is no different, except that instead of working in the school's library or cafeteria, she prefers to drive a bus.

Kathy, 18, is the daughter of Bob Salisbury, supervisor of

Scheduling in the Electronics Division Navigation department. She is a freshman at Chico State College.

Kathy got the bus driving job when the owner of the dormitory she lives in began providing bus service for students during heavy rainfalls. Chico State is located at the foothill of the Sierra Mountain Range and experiences one of the heaviest rainfalls in California (50 inches in January).

"Kathy's dormitory is nearly a mile from the campus and most of the students use bicycles, but

were drenched by the time they got to their classes," said Mr. Salisbury.

Kathy shares the bus driving job with two boys. She makes 12 round trips a week which are predetermined by her free classes, so she has a different schedule each week.

A Pilot, Too

Last year, while attending Hawthorne High School, Kathy received her private pilot's license, which her father says she is still thinking about using in some way to earn additional money or flight experience.

"Even if she can't find a good flying job," Mr. Salisbury chuckled, "Kathy can always earn extra money by falling back on her occupation as a bus driver."



KATHY SALISBURY
Chico State College's prettiest bus driver.

BOWLING TOURNEY HAS OPENINGS

Entries for the 23rd Annual Western Industrial Recreation Association Bowling Tournament are now being accepted, according to Jerry Alexander, Aircraft Division NRC Bowling commissioner.

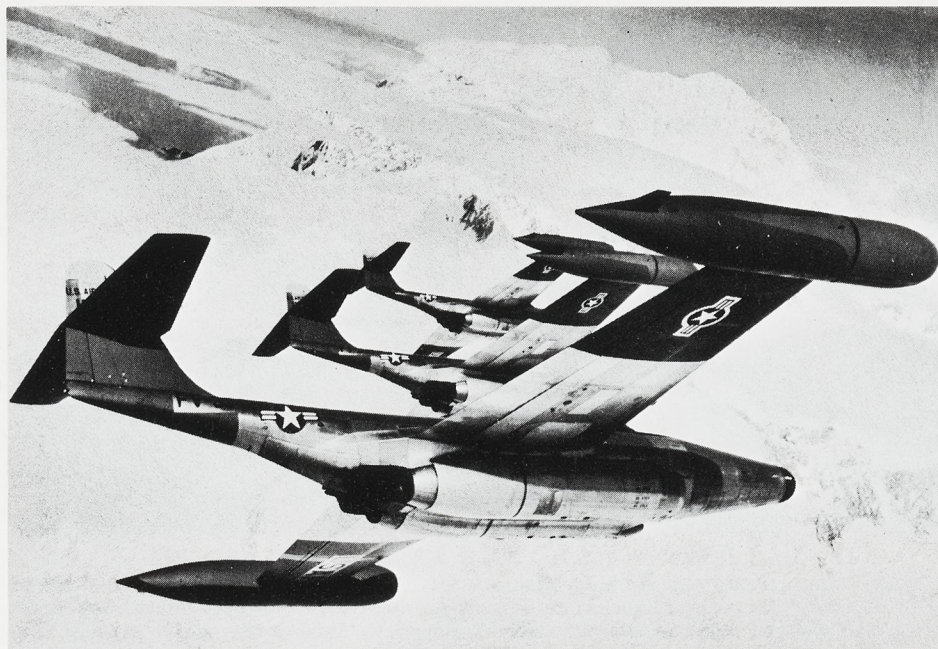
"This has been a very popular tournament with industry throughout Southern California, with Northrop being represented in varying degrees almost every year," said Howard Johnson, secretary of the Northrop Classic Bowling League.

Entry blanks are available at most local bowling establishments, or from Tom Weaver, Electronics Division, ext. 227, Hawthorne. The tournament is scheduled the weekends of June 6-7 and 13-14 at the Bowl-O-Drome in Torrance. Entries must be postmarked no later than May 4.

SECRETARIES TAP DORIS ROBINSON

The Aircraft Division's Doris Robinson will be installed next month as president of the Stellar Chapter, National Secretaries Association, International.

Mrs. Robinson, of Industrial Safety Engineering, served the club last year as first vice president and the year before as treasurer. Installation ceremonies May 12 will be at the Los Amigos Country Club, Downey.



ALL-WEATHER F-89'S IN FORMATION OVER ALASKAN RANGE.



TWIN-JET F-89D FIRES ROCKET SALVO FROM WING TIP PODS.

F-89 Scorpion Interceptor—Durable Record Setter

"In a burst of fire which stabbed the sky with sudden pin-pricks of light, 104 finned rockets streaked through the air 30,000 feet above the Naval Air Missile Test Center on Point Mugu, Calif. They were fired in full salvo from the wing tips of an F-89D, built by Northrop, United States' most heavily armed jet fighter."

That was the Life Magazine text accompanying a two-page Aug. 16, 1954, spread on America's top fighter aircraft of the day. And the F-89 Scorpion deserved its praise.

From its first flight in 1948 to its last official flight 21 years later, the F-89 twin-jet aircraft was a success. "She was one of the greatest of birds that ever flew," says B. L. (Brig) Brigham proudly. He served the Scorpion in Field Support.

Bridging the gap between World War II and supersonic

planes, work on the experimental F-89 began when the last B-49 was on the jig, according to Rex Thornhill.

Mr. Thornhill worked for Paul Jacobs, now vice president Military Aircraft and Support Operations at the Aircraft Division, in XF-89 Advanced Production in Plant One of the Aircraft Division. "We worked where the offices are now on the Broadway side of the building.

"After we finished the first plane, the XF-89, Paul was promoted and I took his old job and we built the second one, the YF-89 before going into full production in Plant Three," Mr. Thornhill recalls. He is now superintendent of Advanced Production at the Aircraft Division.

Working closely with him and Mr. Jacobs were Harry Parker, now director of Quality Control at Ventura, and E. V. Chandlee,

(Editor's Note: This is the third in a series of articles featuring historical Northrop products. Northrop News staffer Peter Toll wrote and researched this feature.)

as well as Lee Smith and Walt Kolar of Logistics and Frank Mathes, then Electrical Inspection, now manager, Production Control. Bob Lieber, manager, Procurement; Bill Fox, Denny Pointon, manager, 747 Quality Control; Warren Sparks, George Reeder, manager, Assembly Stores; Pappy Clay and Clair Harris.

More than 1,000 of the F-89's were produced in the decade ending in 1960. They were the favorite of the Air Defense Command and later the Air Training Command. Operational in desert heat or 50-below cold, the F-89 went into Air Force service in 1950 packing the deadliest air-to-air weapons of the day.

Production contracts came rolling in—\$4 million in 1950, \$180 million in 1951 and another \$155 million for July 1954 through August 1956. The Scorpion was the biggest Northrop product.

Going Great

That meant more people and more facilities. Scorpions were built at Hawthorne (10,000 personnel), given final checkout at Palmdale (1,400 personnel) or Ontario (1,500 people) Airport which is now owned by the City of Los Angeles.

Northrop personnel took great pride in the F-89. It was a hot item and a record-setter.

Its heaviest ultimate armament was the MB-1 Genie rocket equipped with a nuclear warhead. That warhead was fired in a test at the Atomic Energy Commis-

sion's Yucca Flats, Nev., test site in July 1957. No other aircraft had ever fired a nuclear weapon. Bill Raikes, now at Ventura, headed the crew which worked with the Air Force in readying the planes for the test.

The airplane had a 2,000-mile range, could fly 600 miles per hour at an altitude of 45,000 feet. It could whip anything in the sky. And on Labor Day, 1953, Jack Farley proved it.

In spite of minor engine trouble and bad weather, Mr. Farley, now base administrator for Northrop at Edwards, took off from Edwards with Bill Pruitt in the radar observer's seat of the F-89C.

A New Record

Their goal was the National Air Show at Dayton, Ohio. "We hit some storms over Colorado and it got a bit rough" but they flew into Dayton with a national record — 1,900 miles in three hours, 45 minutes and 12 seconds.

The F-89 got its nickname because of a major departure in design which raised the tail up like the stinger on a desert scorpion. "That design gave a free air flow to the horizontal stabilizer," explains Jean DePue, now at Ventura.

Mr. DePue, a foreman during development of the Scorpion at Muroc Dry Lake (now Edwards) in the late 1940's, noted that contemporary designers of jet aircraft have adopted that Scorpion design style, or a modified one, for current craft.

More than 20 years ago it was so radical that the Howard Hughes movie "Jet Pilot," with John Wayne and Janet Leigh, used the unmarked XF-89 as "that secret enemy jet plane."

Fred Bretcher was in the cockpit when the XF-89 first took off at Muroc on Aug. 16, 1948. The big black bird had a wingspan of 56.2 feet, stood 17.7 feet high and 53.4 feet long. It had no wing tip pods, although "after the first flight we put the tip tanks on for aerodynamic reasons," Mr. DePue said.

The first tip tanks were very big. They carried 600 gallons of fuel each and were placed directly at the wingtip rather than over or under the wing. Subsequent tanks had 300 gallons with space for armament.

The F-89A series went into production in 1949 and Mr. Farley flew the first set of planes up to Hamilton AFB in Northern California in 1950. The F-89A, B, and C models carried six 20 mm cannon in the nose. The F-89D increased the firepower—104 2.75-inch rockets in fuel

rocket pods—unmatched in the mid-1950's.

Near And Far

The Scorpions patrolled everywhere with Bob Love as the demonstrator pilot. With Mr. Farley, men such as Dale Johnson, Cliff Jolley, Rollin Owen, Gene Townsend, Rod Close, Lew Nelson, Charley Tucker and Frank Christopherson began delivery of the F-89D's in July of 1954.

They took the Scorpions to Alaska, Iceland, Florida, Wisconsin, Oregon, Georgia, Utah, Iowa, Arizona, Michigan, Newfoundland and California.

Northrop men who helped to keep the Scorpions working in Arctic snow or wherever they were assigned, included Mr. Brigham, Jim Anthony, Don Brennan, Hank Waklee, Ed West, Ernie Felis, Nels Williams, and Bob Schumacher, among others.

One of the men who set records with the F-89 as an Air Force pilot is now with Systems Safety at the Aircraft Division. Erroll Williams flew with the 57th Fighter Interceptor Squadron at Presque Isle, Maine, in 1953.

After a six-week gunnery meet at Yuma, Ariz., he won the major competition in his F-89C obtaining a high individual score of 84.5 per cent of his targets.

Flexible

Ability to carry and deliver the latest and most potent weapons was a product of the designed-in growth factor of the Scorpion. This included the ability to adapt to the then-new Hughes radar system of "locate, lock on and strike."

Among the engineers who contributed to this flexibility, reliability and airworthiness were Ray Tenhoff, John Atkinson, Roy Whites, Hugo Pink and Dave Selig.

During 1957-58 the twin-jet F-89's had fewer major accidents per 100,000 flying hours than any other squadron operational U.S. fighter. They operated around the clock in extreme weather — from Thule, Greenland or Fairbanks, Alaska, to the Mojave Desert.

But time and technology caught up with the colorful Scorpion. Last summer the final two squadrons using the F-89, Air National Guard units at Des Moines, Iowa, and Bangor, Maine, retired the jaunty bird.

And the Scorpion which wielded the most powerful stinger in history has retired at Northrop, too, as the T-38 and F-5 carry on the tradition of building first-rate aircraft for defense of the Free World.



F-89 FIELD SERVICE IN ALASKA

From left, John Norden, Lee Smith, Jim Norris, B. L. Brigham, Ernie Felis, Doug Marine, Walt Kolar, Jr., John Nicholson, Art Kay, Max Wenzl, Bob Mitchell, Chuck Weaver.



FIRST F-89 AND ITS PROUD CREW — 1948

Fred Bretcher in cockpit. Standing, from left, Johnny Martin, Dick Carpenter, Fred Cunningham, Eldon Richards, Gerald Andreoff, Leo Grant, H. W. Kennedy, Scotty Johnson, James Tway, H. W. Hedge, Charles Fitts, Jean DePue and Elwood Chandlee. Bottom, from left, Russ Lovvorn, Hugo Pink, John Footitt, Doug Factor, Harry Parker and Ed West.

Northrop Sons On State's Top Youth Soccer Team

Three Aircraft Division sons are members of the Torrance Bruins, the 1970 American Youth Soccer Organization California state champions in Division One.

They are Jeff Gibson, son of Hoot Gibson of 747 Configuration Management; David Dobos-Bubno, son of Alex Dobos-Bubno of F-5/T-38 Controls; and David Atkinson, son of Bill Atkinson of F-5/T-38 Mechanical Design.

Two other sons, Robert Houston, son of Bob Houston of the Differential Maneuvering Simulator project, and Paul Atkinson, also the son of Bill Atkinson, were members of the Torrance Hornets, a team that reached the semi-finals in Division Two. The Hornets lost to the San Francisco

Mustangs after two eight-minute overtime periods following a 2-2 tie at the end of the regulation game and a 3-3 tie after the first overtime.

The Bruins copped the championships, held at the Los Angeles Coliseum this month, 3-2, on a last minute goal in the second overtime. Their opponents were the Redwood City Cardinals.

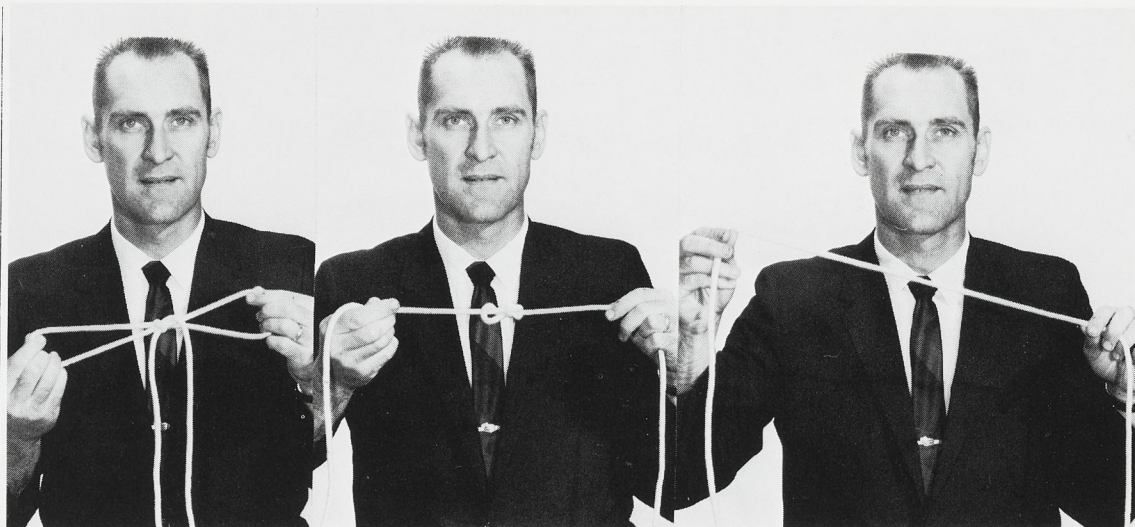
Founded in 1964 to promote soccer among youngsters between the ages of 7 and 15 years, the AYSO has experienced remarkable growth, particularly in the South Bay area. For example, 14 teams competed in 1967; 93 in 1969 in the area.

Mr. Atkinson, a former amateur player in England, has been active in the organization for the past three seasons as a spectator, coach and currently as the commissioner of the Capitol District in the South Bay.

Mr. Atkinson says that the regular season runs from October to February and he will be glad to discuss the entire program with parents wishing to call him on ext. 1647 at the Aircraft Division.



CALIFORNIA YOUTH SOCCER CHAMPS
Torrance Bruins include three Northrop sons. Jeff Gibson is left and David Atkinson, third from left in front row; David Dobos-Bubno is second from left, back row. In top photo Paul Atkinson of the Torrance Hornets stretches in vain for ball.



HE PERFORMS MAGIC WITH A MORAL

Ren Dueck, like Aesop, mixes morals with his entertainment. Mr. Dueck uses his talents as a magician to teach moral and religious truths to young people. Here he makes a hard knot disappear in the same manner, he tells audience, that one can make personal troubles disappear by leading the proper kind of life.

NO HOCUS POCUS

In 'Gospel Magician's' Teachings

Aesop told fables to bring out morals, but Ren Dueck, senior reliability engineer with the Electro-Mechanical Division, uses magic to put over his moral truths to young people.

As a "gospel magician," Mr. Dueck works morals and religious truths into his magician's talks. An example of the way he works is the familiar trick where the magician ties a complicated knot in a rope and then makes it disappear with a flick of his hand.

He first ties a bow tie knot, telling his audience of children that this is the kind of knot they tie in their shoes in the morning. "Then as the day progresses," he goes on, "the knot in our shoes gets all tangled." By this time he has a tangled mess that looks like the Gordian Knot itself. "It is the same with our lives," he continues. "We get all tangled up, but if we follow the moral principles given to us in the Bible our tangles will—" and with a flip of his wrist he makes the complicated knot disappear.

Another example of his work is to display two handkerchiefs tied together — a yellow hand-

kerchief symbolic of lying and a green one representing jealousy. A wave of his hand changes the colors to red and blue—symbolic, he tells his audience of red-blooded citizens and true-blue friends.

Mr. Dueck began as a chalk talk artist after his wife pressed him into helping in a Child Evangelism Fellowship rally in 1965. He knew nothing about it and had to hastily attend a chalk talk workshop to find out what he had to do.

He found that working in spiritual messages and morals went over big with his audiences and has gradually built up his programs. To the chalk talk programs he added unusual musical instruments—a set of tuned cow bells, a musical saw, musical glasses, and a Theremin, an electronic box played by waving one's hands in front of an antenna.

From this start he added magic acts and today prefers magic to musical instruments and chalk talking. He has not given up chalk talks however as his editorship of "The Christian Artist," a magazine that serves members of the Christian Artists Fel-

lowship shows.

Lately his programs have become a family affair with his wife, Grace, and children, Charlene 12, Randy 10, and Wayne 8, joining in to help. They average two programs a week at churches, schools and civic organizations.

Mr. Dueck also is an active member of the International Brotherhood of Magicians and the Society of American Magicians.

GET DISNEYLAND TICKETS EARLY

Have you bought your tickets yet for the entertainment bargain of the year? That is, of course, Northrop Night at Disneyland.

The date is May 23. All the thrills and chills and beauty of Disney's "Magic Kingdom" will be reserved exclusively for Northrop families from 8:30 p.m. to 1:30 a.m.

With the single ticket, visitors may park, enter the main area and enjoy unlimited use of all facilities, exclusive of shooting galleries, without further charge.

Credit Union Extends Date

An extension in the open enrollment period for a new voluntary health and accident insurance plan for Northrop Credit Union members has been arranged.

This low-cost insurance makes payments on Credit Union loans in case the borrower is disabled (Northrop News, April 15).

Originally the deadline for present borrowers to subscribe for the insurance was April 30. Due to delays in distributing descriptive material and the large response, the deadline has been extended to May 9.

This service, which is strictly voluntary, will be available to new borrowers in the future.

PROSPECTOR CLUB OFFERS SAVINGS

Among free services being provided at Northrop ticket outlets are member cards for Knott's Berry Farm's Prospector's Club.

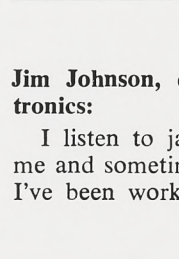
Members may save as much as \$1.40 for adult ticket books through use of these cards. And card holders, plus members of their families, may enter the entertainment area free on their birthdays.

WE ASKED THEM—What Is Your Favorite Method of Relaxing?



Kay Widick, plastic laminator, Ventura:

I like to lie down for a while and watch a movie on television when I get home. Then, after watching the news, I'm ready to start dinner.



Jim Johnson, engineering test assistant, Electronics:

I listen to jazz music. It completely relaxes me and sometimes helps me to solve a problem I've been working on for a long time.



Beverly Baker, technical editor, Electro-Mechanical:

Maybe I'll read or plop down in front of the TV or even add a few strokes to one of the still life paintings I like to do.

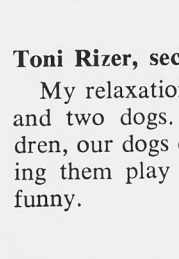
Donald Gels, tool crib operator, Aircraft:

I like to putter around in the garage, tuning my car or making minor repairs. Mechanical work is fun, and relaxing. I am also a confirmed TV addict and watch a lot of favorite shows. Every so often I like to head for the mountains or desert for a day or so.



John MacCarley, Product Effectiveness, Ventura:

Reading a good book relaxes me, so does mowing the lawn. I also help my sons with their math homework. Reading is the thing that relaxes me most, however.

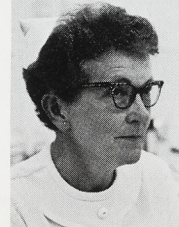


E. B. Dubay, quality checker, Electro-Mechanical:

I like to get out in the open and do a little amateur prospecting with my two boys, and also to get in some target practice. All of us like the desert.

Ardythe Voogd, industrial nurse, Aircraft:

Going camping. My husband and I like to load our camper and get out of town. We like the mountains particularly, but have camped on cross-country trips. We go with a group of friends on occasion or alone, if necessary. We just like to get out and take it easy.



Classified

Classified ad service is provided free of charge to all Northrop personnel. Ads for agencies, commercial enterprises and private businesses are not accepted. The Northrop News reserves the right to edit or omit ads. Obtain ad form C67 from organization clerk and mail ad to Northrop News, 170, zone 62. Ads are limited to one item and one ad per person each issue. Deadline is noon Wednesday, one week before publication.

Automobiles For Sale	
Cadillac, 1965 Sedan de Ville, 39,500 mi., Dual 90 tires, auto. climate air, 6-way pwr. seat adjust., FM-AM signal radio, \$2,950. 213-472-6430.	A
Chevrolet, 1941 4-dr. sedan, o/drive, over \$1,200 invested, \$750. 213-635-6134.	A
Volkswagen, 1965 sedan, radio, \$850. 213-596-1257.	A
Volkswagen, van panelled, stereo tape player, new eng. & trans., \$1,295. 213-862-3027.	A
Corvair, Monza 900, 4-spd., \$375. 714-826-6618.	A
GTO, 1967, recent major tuneup, \$1,550. 213-372-8171.	A
Truck, 1967 Ford, ¾-ton, 10½" w/camper, custom Teardrop, V-8, auto. trans., p/s, p/b, r/h, sleeps 7, many extras, \$3,250. 805-498-8877.	A
Chevrolet, 1963 4-dr. Biscayne, new trans., \$450. 213-329-7998.	A
Pickup Truck, Ford, auto. trans., ½-ton, \$475. 213-671-5409, 213-674-2351.	A
Volkswagen, 1957, rebilt. eng. & 1966 trans., \$300. 213-679-0835.	A
Austin Healey, 1960 3000, \$650. 714-892-1401.	A
Mustang, 1967, 2+2 Fastback, 390 hi-perf. eng., many extras, \$2,150. 213-328-6662.	A
Ford, 1961, 4-dr., r/h, 6 cyl., \$250. 213-421-6958.	A
Cougar, 1967, air cond., take over \$84.14 pymts., \$1,900 bal. 213-675-4597.	A
Mercury, 1960 Montclair, \$250. 213-323-2289.	A
Comet, 1962 4-dr., auto. trans., \$275. 213-644-1096.	A
Jeep, 1969 flatbed, take over bal., 4-wheel dr., U-2000, 350 V-8, \$3,200. 213-326-0676.	A
Ranchero, 1965, 6-cyl., \$750. 213-645-6290.	A
Cadillac, 1964 4-dr. Sedan de Ville, all power, a/c, \$1,100. 213-644-5165, 213-678-9818.	A
Ford, 1965 Fairlane, r/h, p/s, p/b, fact. air, \$995. 213-676-4248.	A
Buick, 1965 Special, V-6, 4 new tires, r/h, \$875. 714-846-4043.	A
Volkswagen, 1968, chrome rims, wood steering whl., \$1,450. 213-378-0565.	A
Mustang, 1969 Mach I 390, auto. trans., AM-FM stereo, d/brakes, Ansen mags, 6,000 mi., \$2,800. 213-671-7875.	A
Oldsmobile, 1962, 4-dr. sedan, p/b, p/s, \$250. 714-642-2616.	A
Dart, 1964, 145 h.p. slant 6, 3-spd. auto. trans., r/h, \$550. 213-421-7029.	A
Corvair, 1965 Monza, 2-dr. h/top, auto., \$500. 213-372-8019.	A
Corvair, 1963 Monza, \$600. 213-329-7218.	A
Corvair, 1961 Monza cpe., r/h, auto. trans., \$200. 213-372-4205.	A
Rambler, 1964 classic 6, 4-dr., \$350. 213-372-5508.	A
Valiant, 1965 Mod. 200, r/h, auto. trans., new paint, \$795. 213-378-0603.	A
T-Bird, 1964, full power, min. bid, \$550. Credit Union ext. 1117.	A
Ford, 1966 500XL, a/c, p/s, p/b, r/h, \$1,495. 213-349-4932.	A
Mercury, 1965 Parklane, 4-dr. h/top, a/c, all power equip., \$1,150. 213-325-2292.	A
Pickup Truck, 1948 Chevrolet, \$200. 213-838-9039.	A
Dodge, 1964 Polara, convt., auto. trans., r/h, \$595. 213-340-4472.	A
El Camino, 1960 Chev., 350 cu. in., 4-spd. trans., \$1,000. 213-327-0447.	A
Volkswagen, 1960 convt., \$400. 714-523-2495.	A
MGA, 1958 convt., eng. o/hauled, new clutch & paint, \$700. 213-423-1363.	A
GTO, 1967, 4-spd., \$1,650. 213-644-3572.	A
Mercury, 1960 Montclair, \$250. 714-635-2475.	A
Buick, 1964 Riviera, full power, \$1,495. 213-641-0686.	A
Chevrolet, 1965 Impala, V-8, 2/dr. h/top, a/c, p/s, \$1,295. 213-327-4672.	A
Triumph, 1968 GT-6, 4-spd., r/h, \$2,495. 213-328-6984.	A
Pontiac, 1965 GTO 389, tri-power, 4-spd., trans. ignition, Cragar chrome whls., many extras, \$1,250. 213-673-2664.	A
Oldsmobile, 1962 Cutlass convt., r/h, auto., \$150. 213-370-3418.	A
Mustang, 1967 V-8 auto., pwr. d/brakes, r/h, \$1,800. 213-324-8690.	A
Volkswagen, 1965, radio, \$800. 213-673-4128.	A
Chevrolet, 1965, 4-dr. sedan, 325 motor, \$300. 213-676-5425.	A
Karmann Ghia, 1963 convt., r/h, rebilt. eng., \$900. 213-437-5730.	A
Chevrolet, 1964 Impala S.S. convt., 283 V-8, p/s, r/h, \$725. 213-343-3536.	A

Household Items For Sale	
Buffet, vintage, completely refinished, 67" x 37" x 22", \$100. 213-375-4312.	B
Range, Sunray, full-size, white, 6 yrs. old, \$25. 213-534-5498.	B
Stove, Kenmore, & refrigerator, Coldspot, \$50 ea. 213-671-8672.	B
Range, gas, 4-burner table top & dble. oven w/rotisserie for bltins, hood w/exhaust fan & lights, \$100 or sell sep. 213-631-1466.	B
Chair, recliner, Naugahyde, avocado green, \$35. 213-327-1835.	B
Window, metal frame, 8 long x 4'6" high, 2 end panels 2' wide w/screens, \$25. 213-831-1704.	B
Secretary, Duncan Phyfe mahogany, \$75. 213-831-1745.	B
Rockers, platform, uphol. maple trim, \$15. 213-377-6352.	B
Freezer, 17' cu. ft. Coldspot, coppertone, \$175. 213-327-1975.	B
Love Seat, 2-place, aqua, \$20. 213-861-6404.	B
Chair, fruitwood French provincial, needs re-uphol., wing-type, \$10. 714-830-3048.	B
Sofa & chair, modern, \$50. 213-327-2279.	B
Crib, Thayer, wooden, \$20. 213-377-5931.	B
Dinette Set, Virtue Bros., chrome & green 35"x59" table w/leaf, 6 chairs, \$50. 213-645-8557.	B
Refrigerator, Frigidaire Frost Free, Imperial, coppertone, \$125. 213-833-9257.	B
Dining Table, Nev-A-Mar, 2 leaves, 6 chairs, \$75. 213-534-2570.	B
Crib, blue & white, w/mattress, \$24. 213-376-4831.	B
Sectional, 3-pc. Rattan, matching chair & occasional table, cushions innerspring w/light brown zippered cover, \$85. 213-675-7050.	B
Mattress, box springs, frame, h/board, twin size, \$20. 213-325-8175.	B
Dining Room Table, 4 chairs, cherry wood, French provincial, \$300. 213-378-7244.	B
Table Lamp, tall, white w/gold trim, new shade, \$12. 213-674-7743.	B
Dining Room Set, Danish teak & oak, table 45" square, 2 leaves, 6 matching chairs, pad, \$200. 213-376-2190.	B

Miscellaneous For Sale	
Portacrib, \$15. 213-346-7829.	C
Surfboard, 6'6" Becker, \$45. 213-374-9944.	C
Stereo Components, 2 spkrs., cabinets, \$50. 213-676-8821.	C
Carburetor, 3-bbl. w/manifold, from 1966 Grand Prix, \$50. 213-644-1720.	C
Ice Chest, large, \$8.50. 213-677-0807.	C
Home, 5 yrs. old, 3-bdrm., 2 baths, f/place, cpts., dps., covered patio, 2 blks. to elementary school, G.I. or FHA, \$29,500. 213-835-5052.	C
Typewriter, office model Underwood, recently reconditioned, w/table, \$45. 213-676-4050.	C
Mobile Home, 12x50 Champion, skirting, awning, 20' cabana, & storage shed, cpts., bltins, \$1,000 equity, \$4,800. 213-328-3182.	C
Pinball Machine, 1966 Chicago Coin Machine Co., Kicker model, \$225. 213-676-2142.	C
Tires, 4 Firestone 6:50x16, military tread, \$75. 213-545-6719.	C
Aquariums, 5, 10, & 15 gal., stand for 15 gal., filters, pumps, many access. fish, \$75. 213-392-5064.	C
Surfboard, Bing Noserider, \$45. 213-671-5070.	C
Pool Table, 8' & 5'x9' ping pong table, \$95. 213-320-3440.	C
Flying Club membership in Flyers, Inc., at Hawthorne Airport, \$300. 805-495-1232.	C
Lot, 3-acre bldg. site, between Woodland Hills & Westlake Village, horses o.k., trees, city water, elec. & phone, \$28,500. 213-783-8271.	C
Oscilloscope, Eico 360, 5", \$85. 213-323-2160.	C
Acreage, 10-acre parcel, Lancaster, \$950 acre. 714-968-2780.	C
Bicycle, English make Denult, 20" girl's, \$15. 213-325-3404.	C
Parachute, T.U. 7 modification, 28', 26' belly reserve, jump boots & suit, lge., helmet, size 7½, \$150. 213-377-9861.	C
Pool, Doughboy, 10' diam., filter, pump & vacuum cleaner unit, \$25. 714-523-5315.	C
Tire, Semperit radial, for 911 or 912 Porsche, never used, \$32. 213-545-3112.	C
Lawnmower, Sears 18" power reel type, less than 10 hrs. running time, incl. catcher, \$70. 213-377-3487.	C
Organ, Estay elec., 24 bass keys, 3 octaves, \$95. 213-675-6020.	C
Organ, portable, by Ideal, vibrato, 5 voices, \$325. 213-372-9428.	C
Aquarium, 15 gal. tank w/Dynaflow filter, htr., reflector, many access., \$25. 213-645-4697.	C
Guitar, Hy-Lo, 3 pick-up, case, mike, \$35. 213-324-7257.	C
Motorcycle, 1966 BSA, \$400. 213-676-6603.	C
Boat, 16' Finecraft, & trailer, twin MK 30 Mercury engs., glass o/plywood hull, many extras, \$700. 213-328-4408.	C
Desk, 30x60, gray, metal, dble. pedestal, office-type w/file-size drwr., \$45. 213-377-1075.	C
Ham Gear, pair 4Cx250B, \$20. 714-639-4438.	C
Ivory Items, genuine sperm whale, scrimshawed by hand, incl. tie bars, tie tacks, cuff links & teeth, \$6-\$8. 213-376-3624.	C
Hairset Kit, Clairol Kindness, elec., heated roller, \$12. 213-645-7972.	C
Bicycle, Stingray, extra gears, \$25. 213-377-5107.	C

Miscellaneous For Sale	
Steering Wheel, VW, wood, \$25. 213-644-6793.	C
Linoleum, 21 yds., Spanish pattern, vinyl asbestos backing, \$2 yd. 213-644-2020.	C
Wheels, 4 15" uni-chrome w/wires, \$65. 213-644-6629.	C
Surfboard, Greg Noll, 7'6"x19", stage IV fin, \$55. 213-375-6397.	C
Scope, 3X-9X Tasco, incl. mounts, used once, \$30. 213-671-4902.	C
Engagement & wedding ring set, never worn, \$70. 213-323-8874, 213-327-3932.	C
Bellyboards, 2, never used, \$40. 213-672-5376.	C
Wheel Camper, 1968, Lodge wagon, sleeps 6, fully self-contained, \$300 equity & take over \$62 mo. pymts., \$1,200 bal. or \$1,500. 213-862-3113.	C
Air Conditioner, G.E., 20' x 30' Model B/C 311 A, 6,000 B.T.U., \$125. 213-644-6505.	C
Console, Packard Bell Espania, stereo, Granada oak, 60 w. pwr., VM auto. turntable, AM-FM radio, 39½" w., 28¼"h., 18¾" d., \$325. 213-672-1617.	C
Boat, 16' Silver Line, 40 h.p. Evinrude motor, used 4 times, Haiciaw trailer, \$1,500. 213-371-4240.	C
Acreage, 5 acres, Antelope Valley, east of new airport, utils., roads, \$400 dn. or \$83 dn. on land contract, \$8,250. 213-378-1026.	C
Boat, 12' alum., 5½ h.p. Johnson motor, convt. top, extras, \$335. 213-326-9107.	C
Lot, 52'x110', view, huge trees, near Lake Gregory, San Moritz Club, Crestline, low dn., \$3,950. 213-377-1074.	C
Trap Gun, Winchester Model 1200, 12 ga., fired 4 boxes shells, \$160. 805-495-7550.	C
Gun, S&W, 9mm auto., never used, \$150. 213-676-2462.	C
Trailer, 1967 19½' Layton, self-contained, \$1,995. 714-897-0453.	C
Rifle, .222 cal. Rem. bolt-action, 3 to 9 pwr. scope, case, 50 rounds of ammo & 60 rounds of extra brass, \$100. 714-828-7873.	C
Outboard Motor, 3 h.p. Evinrude twin, \$75. 213-532-6162.	C
Acreage, 2½ acre parcels near Palmdale Intercontinental Airport, low dn., low int., \$6,500. 714-871-1373.	C
Shopsmith w/stand, speed changer, jointer & jigsaw attach., \$175. 213-670-2564.	C
Tools, Snap-On & toolbox, \$180. 714-534-2277.	C
TV, 24" Admiral color console, maple, 6 yrs. old, \$200. 213-365-7338.	C
Motorcycle, 1967 Ducati, 350 cc, late Diana Mk III specs., many extras, \$400. 213-672-7359.	C
Adding Machine, elec. & ditto machine, \$50 ea. 213-370-9626.	C
Outboard Motor, Lauson 4-cy., 3 h.p., used very little, \$75. 213-671-2776.	C
Motorcycle, Honda 90, semi-auto. trans., only 2,600 mi., \$195. 213-323-6717.	C
Boat, 14', trailer, \$100. 213-428-5064.	C
House, 3-bdrm., \$10,900 equity plus \$12,600, \$7,000. Box 801.	C
Car Seat, jumper, infant carrier, \$12. 213-379-1873.	C
Golf Clubs, first flight woods 1-3-4, 2 yrs. old, irons 2-9 & wedge, \$60. 213-532-4566.	C
Acreage, 113 acres, house, 3-bdrm., 1¼ mi. from Savage Rapids Dam on Rogue River, near Grants Pass, Ore. \$375 acre or \$350 acre unimproved. Box 802.	C
Guitar, nylon or steel strings, \$15. 213-373-5952.	C
Engine, rebuilt 283 Chev. w/heads, manifold, carburetor & extras, \$125. 213-325-3452.	C
Hair Dryer, small, w/case, \$6. 213-644-8115.	C
Radio Control, orbit, complete, 4 channel, 4 servos, transmitter, receiver & batt. pack, \$275. 213-772-1789.	C
Horse, 4 yr. old bay gelding, thoroughbred & Morgan, \$400. 213-678-1812.	C
Ham Station, complete, incl. full teletype, \$950 or sell sep. 714-860-3793.	C
Cabin Cruiser, 22', sleeps 3, bait tank, 100 hr. Gray marine eng. & cover, \$1,750. 213-323-4766.	C
Saw, 12" radial arm, never used, \$250. 213-866-2274.	C
Motorcycle, 1966 Ducati, \$200. 213-423-5956.	C
Kittens, Siamese sealpoint, after May 1, \$10. 213-756-2842.	C
Ham Radio, Drake 2-B receiver w/Heath Q multiplier, Heath DX-60 transmitter w/crystals, \$170. 714-776-2709.	C
Pups, mixed collie, shepherd & possibly hound, browns & greys w/white markings, 6 wks. old, \$5 ea. 213-379-8324.	C
Sails, by Shock for Santana 22, main & jib in orig. bags, \$100. 213-372-9954.	C
Camping Trailer, self-contained, 18', \$3,000. 213-830-5284.	C
Mini Bike, Bonanza, Hodaka Ace 100, 12 h.p. motor, 5-spd. trans., \$275. 213-823-6020.	C

Wanted to Buy	
Relaxacisor, used, reasonable, preferably solid-state. 213-679-1631.	D
Trail Bike, Honda, 50, 70 or 90 cc, must be in good condition. 213-373-5223.	D
Motor, 9½ h.p. Mercury or Evinrude, must be late model w/low hours. 714-545-2035.	D
Toy Trains, old. 213-675-6461.	D
Guitar, 4-string, or banjo, harmony style quality or better, good condition. 213-242-9723.	D
Clarinet, used, reasonable. 714-897-2007.	D

EDITOR'S NOTEBOOK

James W. Ramsey of the Aircraft Division has called our attention to the accomplishments of a former Northrop employee. He suggests we title our report "From Gremlins to Gremlin." It involves Richard (Dick) Teague who is now vice president (Styling) for American Motors and one of the designers of that company's new model called the "Gremlin." Mr. Teague began his career at Northrop during World War II as a technical illustrator for pilot's handbooks, repair manuals, design proposals and the like.

Old-timers will recall that mythical "Gremlins" were accused of all sorts of aircraft problems and failures. Mr. Teague, according to Mr. Ramsey's note, continues to be interested in the restoration of antique cars. More, he likes to recall and talk of his Northrop days and many Northrop friends.

* * *

We've recognized the makings of a dandy human interest story in our midst for some time. However, News staffers share a common feeling that they should write about others, not themselves. Too, the subject in this case is extremely modest and reluctant. So a story in the Santa Ana Register April 5 "scooped" us a bit. Now that it is out, and many employees did not see it, we would like to write a bit about our own Ivy G. Edmonds, editor of the Electro-Mechanical edition and a frequent writer of stories from throughout the Corporation.

Mr. Edmonds has published 55 books, all written in the past 11 years. Most deal with folklore of various countries, famous people and historic events. Two-thirds of them have been written for adults, the remainder for children. They have been published in most of the languages of the world. He has also written under fictitious and "ghost" names. His latest work, soon to be published, is "Khy-mers of Cambodia," a story of internal and external struggles for the country. It was delayed on the press while Mr. Edmonds hastily re-wrote the final chapter following the ousting of Prince Norodom Sihanouk from power.

Mr. Edmonds has no formal training in writing, just experience which began with following his family across Texas during the oil boom days and climaxed with a 21-year military career. He has been a combat photographer, Stars and Stripes writer, and public information chief, plus many assignments as an editor. He has traveled around the world.

He dubs himself as a "carpenter" of books, not an author. That's largely due to the way he works. Publishers hire "create editors" who survey the market and determine what will sell. They give specific assignments to agents who pass them on to men like Mr. Edmonds to fill. Using an extensive personal library, or research material from many sources, Mr. Edmonds can, if the deadlines dictate, turn out a 45,000-word book in eight or so days, although most average between 45 and 90 days in writing. Those of us who work with him, and admire his talents greatly, marvel that he manages to do so much after work and over weekends.

Wanted to Buy	
Piano for not more than \$95. 213-397-6110.	D
Outboard Motor, 10 to 15 h.p. 213-425-6816.	D
Refrigerator, old, not in use for instructional purposes, removal at my expense. 213-368-1269.	D
Exercise Slant board. 213-371-7382.	D
Golf Clubs, late model, pro-line, 1, 3, 4 woods, 2-9 irons, D-2 or D-3, regular length, med. shafts, composition grips. 213-378-4567.	D

Free (To Be Given Away)	
Swing, child's, climbing bar & slide set, professionally-made. 213-377-4623.	F
Kittens, 5, black & white. 213-434-5460.	F
Kittens, 6 wks. old, part Siamese, house-broken. 213-645-1489.	F
Sectional, 3-pc., needs cover. 714-527-7456.	F

Rentals Offered	
Ski Cabin, Mammoth Lakes, 4-bdrm., loft, 2 baths, & f/place, completely furn., close to Devil's Postpile, Rainbow Falls, Yosemite, \$150 wk. 213-376-9040.	G
Room, w/pvt. gar., \$15 wk. 213-323-0985.	G
Metal Detector, Goldak Mod. 720, \$10 day, \$15 w/end, \$50 wk. 213-674-8088.	G
Cabin, Big Bear Lake, \$30 w/end. 213-867-0662.	G
Cabin, Big Bear Lake, Moonridge, f/place, 2 baths, 3-bdrm., family only, \$125 wk., \$50 w/end. 213-326-7232.	G
Cabins, Lake Gregory & Crestline, sleeps 6, \$25 w/ends; \$60 wk. 213-391-2040.	G
Apt, 1-bdrm., in Hollywood Riviera, completely furn., f/place, B.B.Q., gar. w/remote control, utils. pd., \$150 mo. 213-378-8608.	G
Apts, all elec., dps., bltins, closed gar., water & trash pd., near Torrance & Anza, 1-bdrm. furn. \$140; 2-bdrm., 2-bath, \$180. 213-371-5037.	G
Cabin, Lake Arrowhead, North Shore, 200 feet from lake, \$125 wk. 213-375-2255.	G
Apt, 2-bdrm., furn., cpts., dps., bltins, lge. pool, closed gar., near El Camino. adults, \$180. 213-329-5986.	G
Sleeping Room, pvt. entrance & bath, close to Northrop, \$55 mo. 213-676-7328.	G
House, Palm Springs area, 2-bdrm., pool, completely furn., adults only, \$150 wk. 213-567-6260.	G
Cabins, Idyllwild, 1 & 2 bdrm., stream, patio, f/place, \$30-\$35 w/end, \$70-\$90 wk. 213-868-8040.	G
Apt, 1 & 2 bdrm., cpts., dps., bltins, all elec., closed gar., \$130-\$150 unfurn., \$150-\$170 furn. 213-375-9397, 213-375-2091.	G

Rentals Offered	
Apt, 1-bdrm., new cpt., closed gar. if needed, on Crenshaw Blvd. near Northrop, \$125 mo. 213-756-3669.	G

Child Care	
Child Care offered, 2-5 yrs. old, experienced, Crenshaw & 119th, weekdays. 213-756-7041.	I
Child Care offered, 1 child 2 yrs. old, yard & other pre-school children, meals, days, Gardena area. 312-532-1439.	I

Lost	
Charm, 14K gold, windmill from Holland, around Plant 3, April 10, reward. 213-831-9707.	J
Cat, smokey grey w/gold rhinestone collar & leash, area of 109 & Prairie on April 4, reward. 213-674-7208.	J

Personals	
I wish to sincerely thank all my friends for the cards, flowers & gifts I received during my illness. RUTH COLLIER.	L
I wish to express my deep gratitude & sincere appreciation to those responsible for the gifts, attendance & many well wishes extended me at the recent retirement party. Another proof that "Northrop was a good place to work." HARRY L. GEHR.	L
I wish to thank all my friends & co-workers for the sympathy & consideration expressed upon the loss of my wife, Dorothy. LYLE WARD.	L
My family & I would like to express our sincerest appreciation & thanks for the help & good wishes provided by everyone during our recent misfortune. R. C. SANDERS.	L
We gratefully acknowledge & thank the many friends at Northrop for the kind expressions of sympathy & donations to the City of Hope in memory of our husband & father, Lane O. Curry. DOROTHY & LANE W. CURRY.	L
I would like to express my gratitude to each individual Northrop friend for their kindness at the recent death of my husband. FRANKA EDSTER.	L
I wish to extend a special thank you to all of my Northrop friends, whose thoughtfulness during a difficult time was much appreciated by all of our family. BUTCH DRESSER.	L
I sincerely & gratefully acknowledge & thank all my friends at Northrop for their comforting expressions of sympathy, both in thought & in deed, at the passing of my brother. GUNDARS RUSIS.	L

For Sale or Trade	
Metal Detector, \$100 or trade for good 30-30 lever-action rifle &/or hand gun. 213-675-2005.	M

747 Status Report Cites High Reliability, Volume

In their first 10 weeks of commercial operations, the giant Boeing 747 superjets have posted impressive results exceeding the performance of the highly successful Boeing 707's when they were introduced into service in the late 1950's.

Since the first 747 went into service on Jan. 21, the superjets have carried 132,000 passengers on 546 revenue flights made by

Pan American, Trans World and American Airlines.

The 747's posted a reliability rate—the percentage of flights departing on schedule or with no more than 15 minutes delay for mechanical reasons—of 92 per cent. This rate exceeds that posted by the 707's for a similar period when they were first introduced into service.

The 747's delivered to the airlines have logged more than 6,300 hours total flight time, including training flight time, and have made 8,500 landings.

More than 25 Boeing 747's have now been delivered to commercial airlines. Deliveries continue at a rate of about 2 aircraft per week.

Northrop's production activities related to the 747 program are moving smoothly on scheduled production rates of seven shipsets of components each month, or one shipset every three working days. Each shipset comprises sufficient components to build the Northrop portion of one aircraft.

Northrop has now delivered the equivalent of 88 shipsets of components to The Boeing Company.

Since the initiation of the 747 design program, Northrop has also managed to reduce the weight of the components it produces by more than one ton from the original Northrop/Boeing estimates while continuing to meet all strength requirements imposed.

On The Job



RON SOWTER works on the vapor barrier of the Boeing 747 wing fairing. Mr. Sowter has been in 747 Subassembly since he joined the Ventura Division two years ago.

Wayne Merritt's Net 60 Sets Pace For Ventura Golfers in Tournament

Hot-shooting and a three-way tie broken by decimal points highlighted Ventura Division Golf Club action in tournament play recently at the Santa Barbara Community course.

Wayne Merritt shot a net 60 to win the B Flight and post the best score of the day. Ken Brubaker had 67 for second and Dick Kipp's 68 gave him third.

Jack Haley won the C Flight with 66, Andy Tyskiewicz was second with 68 and Dick Donald's 71.16 edged out Tom Lucero, 71.20, and Hal Barber, 71.48 for third.

Winning the A Flight was Bob Schaeffer with a 67. Close behind with 67.98 was Ron Aitken while Lou Vinson had a 68.36 for third. Eileen Munro and Yvonne Aitken finished one-two, respectively, in the Ladies Flight.

Closest-to-the-pin honors went

to Warren Sparks, Ray Brooks and Bill Lowe with Bill Quick, Jr. hitting the longest drive.

Player of the year point standings, as the golfers eye the next tourney May 23 at Elkins Ranch in Fillmore, find Wayne Merritt in front with 210.

Northrop golfers are also out to defend their Rancho Conejo Industrial Golf League crown as play commenced in that league this week at Los Robles Greens.

Ventura's Team One is captained by Dick Davis and includes Mr. Aitken, Mr. Brubaker, Al Hahn, Bob Jones, Joe Sliakis, Mr. Sparks and Dick Warner.

Team Two in the industrial league is headed by Bob Rowlett and includes Ben Beirne, Bill Downs, Mr. Kipp, Ron Lancaster, Bill Quick, Sr. and John Schaeffer.

'WEST SIDE STORY' HAS VENTURA'S LUPE ZUNIGA IN A MAJOR ROLE

Playing a key role in the Cabrillo Music Theatre's upcoming production of the musical "West Side Story" is Ventura Division employee Lupe Zuniga.



Miss Zuniga Auditorium.

This is the second major Cabrillo Music Theatre role for Miss Zuniga. She appeared in "The King and I" last year as Tuptim and utilized her soprano

voice in that musical.

An experienced stage, motion picture and television actress, Miss Zuniga recently completed filming of an "Ironside" television episode and handled voicing on a yet-to-be-aired documentary film.

She had a leading role in the bilingual afternoon drama "Song of the people" on Los Angeles' ultra-high frequency television Channel 28 and has just completed the Jeff Corey Workshop in Ojai.

Miss Zuniga is secretary to Michael Burns, chief, Management Information Systems.

Contact Kathy Miller, ext. 435, for tickets.

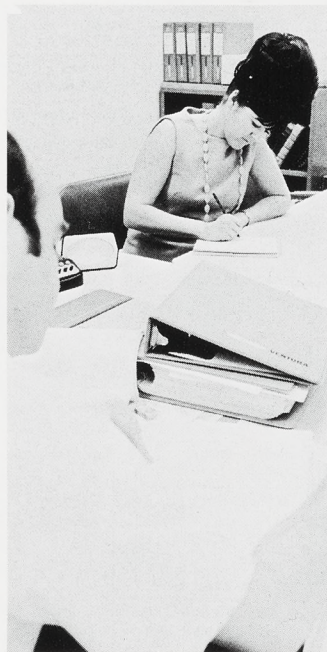


PAT BOIES, SECRETARY TO WELKO GASICH
Eight-year Northrop secretary keeps busy working for Ventura general manager.

SECRETARY'S WORK IS NEVER DONE



LOUISE WOODS
Stiles Burke's her boss.



LINDA HAWK
Works for Ron Lancaster.



MARY ANN COX
Secretary to John H. Wells.



JODI ARNSPARGER, SECRETARY TO PAUL WOOD
Taking care of paperwork is added duty for Inventory Control supervisor's secretary.

NORTHROP NEWS

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REMOVING PART FROM PRESS
Ventura Press Operator Nacho Romero with new graphite drone part.

Graphite Composite Part Produced for MQM Drone

A technician and a research specialist have demonstrated that the Ventura Division's existing facilities and technology can produce graphite epoxy composite aircraft parts "without any problems at all."

That's the report from Dick Schwend, manufacturing research analyst. He and Nacho Romero, a press operator, produced the part for a target drone from broad goods made available by Northrop's Aircraft Division.

Graphite epoxy composite is the latest generation in structural aircraft materials. It is known for high level fatigue performances in spite of its low weight. It is as strong as steel but much lighter and easier to work with.

Mr. Schwend predicts that 25 per cent of all aircraft structural

parts will be made of the new graphite composite in five years. "But it will be a slow transition."

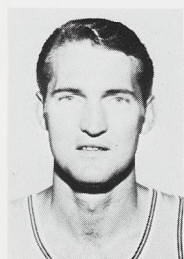
However, "we could transform our fiberglass operation into one working on graphite virtually overnight if we had to — they are very similar in production," he added.

The graphite epoxy composite is made of layers of carbon fiber material bonded together in a heat-pressure process by epoxy resin. The "broad goods," as they are called, are thin, flat pieces of the stiff material.

"The piece we used was about two by three feet," Mr. Schwend said. "We put it in the press, using existing tooling, and produced the part — an MQM-74A vertical stabilizer skin." Vince Gurley of Marketing advised the men.

BASKETBALL STAR JERRY WEST TO ADDRESS MANAGEMENT CLUB

Los Angeles Lakers' pro basketball star Jerry West will be the guest speaker at the May 27 meeting of the Ventura Division Management Club.



Mr. West
standing play.

The two-time All-American at

West Virginia is the first Laker in 19 years to win the scoring title and only the third guard in NBA history to lead all scorers.

Mr. West has racked up 19,144 points in 10 seasons with the Lakers to be the sixth greatest career scorer in NBA history. He is a constant NBA All-Star Game performer.

"Guests are welcome," says Management Club President John Wells, "for the usual fee of \$7." The 6:30 p.m. steak dinner will follow a 5:30 social hour.

This month's meeting will be at the new Holiday Inn in Newbury Park. May 22 is the reservation deadline and seating is limited.

Suggesters' Awards Average \$70 When 13 Venturans Share \$927

Thirteen Ventura men share \$927 — an average of close to \$70 apiece — in the latest list of Suggestion Award Program cash prize recipients.

At the top of the list is Richard (Dick) Roberts of Quality Engineering with a \$283 award for a time and money-saving procedure for shipping so-called 747 "loose parts."



Mr. Roberts

"They had some illness out there in Shipping Inspection," Mr. Roberts told the Northrop News, "and I was sent out to help on an emergency basis. After filling the gap I realized there should be a better way."

Mr. Roberts said he evaluated the piecemeal operation involving 2,000 small 747 wing fairing parts — an average of 10 per shipset inspection — and came up with a new plan saving time and money.

Teamwork played an important role in the cash awards for five other men. Three teamed up for one cost-cutting idea and two more joined forces for another.

Jim Headrick of MQM Final Assembly, Joe Trujillo of Plastics Assembly and William Cope of Assembly Inspection, each re-

ceived \$20 for their idea to improve the center section structure of the MQM-74A target drone.

L. M. Krug of Tool Fabrication, and Ted Anderson of Production Test, got their heads to-

gether and earned \$26 each for a tool maintenance and repair idea.

Another good idea came from Ken Bozzo in Plastics Lamination, and Ted Anderson of Production Test, got their heads to-

(See SUGGESTERS, page 6)



RECALLING DAYS WITH SNARK
Vic Matakas, 25-year man, left, and 30-year man Glenn Livingston.

Glenn Livingston Reaches 30 Years with Northrop

Ten Ventura Division personnel, led by 30-year man Glenn Livingston, will receive service pins this month representing 16 decades of Northrop employment.

Mr. Livingston, supervisor of Logistics and Support Engineering, was hired May 28, 1940 as a production engineer on the N3PB seaplane at the Aircraft Division.

Transferring to the Ventura Division (then Radioplane) in 1954, Mr. Livingston has spent the majority of his Northrop years with this division. He has worked with virtually every Ventura Division target drone since 1954.

"I consider Northrop one of the best companies in the country," Mr. Livingston said in reflecting on his service with the firm. "It has its ups and downs like any other company but it al-

ways comes back again," he said.

Also reflecting this confidence is 25-year man Vic Matakas. Although he has continuous service since 1945, Mr. Matakas also worked for Northrop from 1940-43. Mr. Matakas works with Mr. Livingston's group.

Two men reach 20 years this month. They are Don Kohn of Liaison Engineering, and Owen Vi-guerie of the Air Conditioning subunit.

Receiving pins for 15 years of Northrop service are Norman (Red) Crate of Vendor Control-Metrology and Test Inspection, Frank Nesemeier of Field Engineering and Training, and Bill Keating of Fabric Fabrication branch.

Bill Shea of the Direct Budgets and Control group, is the lone 10-year man for May as Charles Hass and Arthur Ruhl qualify for five-year pins.

Gearing Up for Bond Drive



PEP TALK is delivered by Tom Tapper to Ventura Division coordinators for Northrop's annual U.S. Savings Bonds Program. The May-long effort seeks to enlist more participation in this patriotic program.

Eight National Merit Scholarships Are Awarded to Northrop Children

Six sons and two daughters of Northrop Corporation employees have been named the winners of 1970 National Merit Scholarships sponsored by Northrop.

They are Chris C. Bentley, Robert L. Good, W. Richard Massey, Robert J. Orr, John P. Orwin, Stephen C. Piper, Diane E. Ramsey and Stephen R. Smith.

The Northrop scholars are among 15,000 of the nation's ablest high school students who became finalists in the 1969-70 merit program administered by the National Merit Scholarship Corporation.

Each Northrop Merit Scholar will receive a four-year study grant, providing between \$1,000 and \$6,000 each (\$250 to \$1,500 per year), depending upon the individual's need.

Since it began supporting the National Merit Scholarship Program, Northrop has presented 63 scholarships to the sons and daughters of employees. With the eight 1970 winners, 35 Northrop sponsored scholarships will be active during the coming year.

Although it provides necessary funds to support the Merit Scholarship Program, Northrop plays no role in the selection of recipients, other than to specify they shall be sons and daughters of current Northrop employees.

Students desiring to enter the program take the National Merit Scholarship Qualifying Test given in high schools across the nation during their junior year. A second test in their senior year confirms their initial performance. Each participant must also be endorsed by his or her school. Skilled evaluators determine scholarship winners.

Winners-Parents

Chris C. Bentley is the daughter of Clark C. Bentley of the Aircraft Division. She plans to attend UCLA.

Robert L. Good is the son of Robert L. Good of the Electronics Division. He will enroll at the University of California-Irvine.

Stanford University is the choice of W. Richard Massey, the son of Rachael R. Massey. Mrs.

Massey terminated at the Ventura Division due to a reduction in work forces shortly before scholarship winners were announced. Ventura Division officials sought and obtained permission for the scholarship to be presented despite this factor.

Robert J. Orr is the son of Thomas P. Nelson, Public Relations representative in Northrop's Washington, D.C. office. He plans to attend Colorado College.

Robert J. Orwin of a Northrop subsidiary, The Hallicrafters Company, is the father of John P. Orwin who will enter the University of Illinois.

Stephen C. Piper's father, Ed M. Piper, Sr., is a member of the Northrop Data Processing organization. Stephen Piper plans to enroll at Stanford University.

Diane E. Ramsey, daughter of James W. Ramsey of the Aircraft Division, will attend the University of California at San Diego.

Stephen R. Smith is the son of the Aircraft Division's Stephen R. Smith. He plans to enroll at Stanford University.



RECEIVING SPECIAL HONORS

From left, James Ripley, Maxwell Pellerin, Carl Hood, Donald McLarnan of the SBA, John Gleason and Ted Marsh.

Northrop, Divisions Earn Praise for Aid to Economy

The Corporate office and each division of the Northrop Corporation have been singularly honored by a federal agency for improving and encouraging the economy through the increased use of small business.

Donald McLarnan, administrator of the Pacific Coastal Area Office of the Small Business Administration, presented the special certificates to individual division representatives.

The certificates praise Northrop's effort in encouraging small business and subcontractors to participate in Northrop programs. This was done through utilization of an SBA referral list.

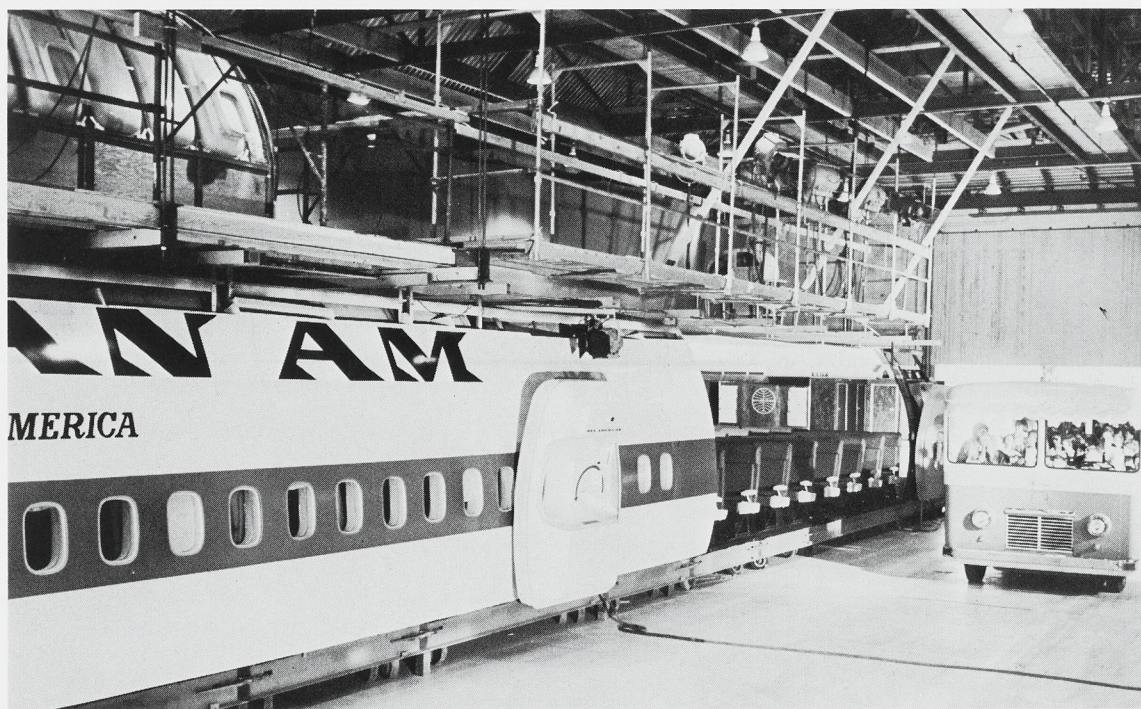
Northrop small business liaison men in the Purchasing or Materiel offices inspected the firms and

appraised their capabilities before putting them on the bidders list.

"Some 40 per cent of every cost dollar spent at the Aircraft Division goes to purchase of supplies, material or equipment," explained Maxwell Pellerin, SBA liaison man for the Aircraft Division.

"And about half of all that money goes to small businesses or subcontractors," he emphasized. "In return, they have provided excellent performance and quality."

Also receiving awards were James Ripley for the Electro-Mechanical Division, Carl Hood for the Corporate office, John Gleason for the Electronics Division and Ted Marsh for the Ventura Division.



THIS 'BOEING 747' WILL NEVER FLY

Visitors to Universal Studios pass by mockup of 747 used by studios to film theatrical sequences and by Pan Am World Airways to train stewardesses. (Pan Am-Universal Studios photo)

BIG BIRD IN MOVIES

Hollywood Studio Builds Own 747 Set

That big Boeing 747 fuselage used for Pan American Airways television movies and commercials is a perfect model duplicate of the Northrop-built fuselage for the big bird.

Hollywood—that is Pan Am and Universal Studios in a joint effort—have constructed the theatrical mockup for filming airplane sequences both inside and out.

The big replica is 110 feet long and 20 feet wide with the words "Pan Am" splashed across the main section in big letters with "Jet Clipper America" underneath in smaller letters.

Not a detail is missed in the huge model. The first class compartment has a luxurious lounge, the economy section is shown along with the galleys, motion picture system and famous spiral staircase.

It took Universal craftsmen in the San Fernando Valley eight months to construct the mockup movie set from Boeing engineering drawings and 4,000 sketches and photographs.

There is no question that every detail is complete. However, as in most theatrical sets, few things actually work. Most of the switches, buttons, compartments and even the lavatories look real but don't function at all.

The set is totally portable. The 184-passenger model is built in 20-foot sections; each section has its own wheels. Ceilings and walls

can be moved to allow filming from different angles and the whole assembly can be moved by truck.

For Pan Am, the first customer for the 747, it means a proper presentation of the biggest commercial jetliner. For Northrop, it means we're on television—every time a Pan Am commercial is aired.

RETIREEES SLATE REUNION DINNER

The Northrop Retirement Club is set to stage its annual Reunion Dinner May 20 at the Alondra Club on Prairie Ave., Lawndale.

Doors will open at 3 p.m. for games and renewing old acquaintances. A buffet will be served at 6 p.m.

Speaker of the evening is John McCoy, Aircraft Division vice president and 747 program manager. The price is \$1.50 per person. Deadline for making reservations is May 15. Contact Personnel Activities at the Aircraft Division.

Just three days later the retirees plan to make their annual visit

to Disneyland in conjunction with NRC night at the "Magic Kingdom." NRC is offering a package arrangement which includes round trip bus transportation. The bus departs from Gate 5 near the Aircraft Division's main cafeteria at 6:30 p.m. May 15 is also the deadline for obtaining tickets and bus reservations through Personnel Activities.

**IS IT NEWS?
CALL EXT. 4273
HAWTHORNE**

NORTHROP MEN COMPLETE CLASS

Frank Merrell, manager, Methods Engineering, and Donald J. Foster, general supervisor, Production Control, Electro-Mechanical Division, have received certificates after completing the "Management in Department of Defense" and "National Security Management" courses of the Industrial College of the Armed Forces.

The courses, open to certain authorized personnel in defense-type work, included Security, Defense Policies and Organization, Supply Management, Management Concepts, and Defense Economics.

TRAVEL CLUB HAS OPENINGS

Northrop Travel Club has responded to popular demand by securing additional space on an NRC-sponsored group tour in late summer to Spain, Portugal and North Africa.

An initial reservation for 50 places has now been increased to accommodate additional travelers. The tour departs Aug. 22 and extends for 22 days. The price is \$695 per person, plus \$49 for tax and services.

An organizational meeting for those interested has been set for 7:30 p.m. June 19 in the NRC Clubhouse, Hawthorne. Northrop ticket outlets have tour brochures.

At Charter Night Ceremony



GREETING PRESIDENT Grant U. Meyers of the National Association of Accountants were Northrop men Dick Davis, left, Eldie Lorentson, right, and Dan Cashier. Event was charter night for new Conejo Valley Area chapter of the NAA and these Northrop men are officers in the new group.

NAB Honors Northrop for Work on JOBS Program

Northrop Corporation has received a certificate of recognition from the National Alliance of Businessmen for the company's support of the Job Opportunities in the Business Sector (JOBS) Program in the Los Angeles metropolitan area.

The certificate was presented by Francis Tappann, vice president, Urban Affairs, North American Rockwell, 1969 chairman for the JOBS Program in the Los Angeles metropolitan area. It was received for Northrop by Marvin Beyrodt, Corporate Community Relations.

The award was made in recognition of Northrop's work in providing personnel to help the Alliance secure pledges from business and industry to employ persons normally regarded as "un-

employable" and to provide summer jobs that would enable deserving students without funds to return to school in the fall.

In making the presentation, Mr. Tappann said that the program had been highly successful. In the last two years it resulted in industry and business pledging 33,000 jobs.

Ellen Krumbach Is High School Co-Valedictorian

The daughter of an Aircraft Division employee is topping off her high school career by being named co-valedictorian.



Miss Krumbach

Ellen Krumbach, daughter of Karl T. Krumbach of Standard Parts at the Mariposa facility, ranks first in Hawthorne High School's class of 530.

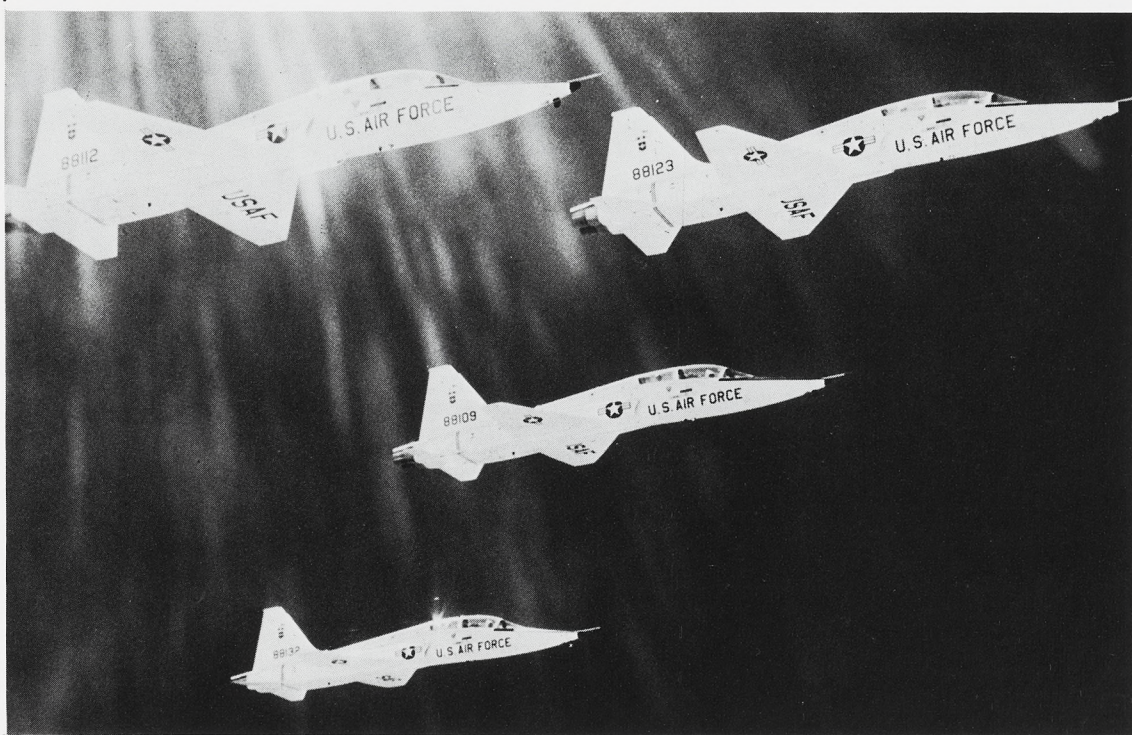
This honor is the latest in a series of many for the blonde young lady.

She spent last summer in the Philippines on a special American Field Service scholarship, and is listed in the 1970 edition of "Who's Who Among American High School Students."

Miss Krumbach has a host of academic honors accompanying her straight-A performance during four high school years. She has also done volunteer hospital work and sings with the Lutheran Chorale of Southern California.

Miss Krumbach will enroll at the University of California at Santa Barbara next fall and major in pre-medicine.

Northrop T-38's Make Imposing Picture



SUNLIGHT BATHING A FLIGHT of Northrop T-38 Talon jet trainers in formation makes a striking picture. These aircraft are being flown by USAF student pilots. Each student pilot logs 120 hours in training flights prior to graduation. Well over 1,000 Talons are in service with the USAF, NASA and the U.S. Navy providing a supersonic training capability. USAF Photo.

Institute Opens Aviation History Library Center

A preview showing of the new Northrop Institute of Technology Aviation History Library highlighted last month's meeting of the Southern California Chapter of the Aviation Writer's of America.

The Aviation History Library contains thousands of informational items of value to the researcher, the writer and the scholar—telling the fascinating story of aviation's birth and growth.

The library has, thus far, catalogued more than 16,000 individual negatives and positives, and is currently processing an additional 50,000.

The Aviation History Library is housed in NIT's Alumni Library, 1155 West Arbor Vitae St., Inglewood.

WITH GREEN BERETS

Northrop Machinist Honored for Bravery

Baltazar Munoz, Jr., machinist with the Electro-Mechanical Division, has been decorated by the U.S. Army for heroism in combat.

Mr. Munoz recently returned to Northrop after military leave to serve in the Armed Forces. While serving as a sergeant in the U.S. Army in Vietnam, he received the Silver Star for gallantry in action, the Bronze Star with V for valor, and the Army Commendation Medal for outstanding performance.

He received the Silver Star after

the helicopter he was riding in was shot down. He survived the



Sgt. Munoz

crash and led a fight to stop an enemy advance on the downed helicopter.

The Bronze Star was awarded after he risked his life to save a fellow soldier who was wounded. "At the same time," the Army citation said, "Sgt. Munoz single-handedly disabled an enemy machine gun position and destroyed an enemy position, unselfishly demonstrating the superior conduct of a fighting man."

Mr. Munoz left Northrop in 1968 for the military service and returned in March of this year.

It's Smooth Transition for Californians Transferred East

Editor's Note: "East is East and West is West..." according to Kipling, but the twain do meet as this report by Joel Truitt from Northrop activities in Silver Spring, Md., proves.

Mr. Truitt tells the experiences of westerners who went east to join the headquarters of the Eastern Division of the Electro-Mechanical Division's Support Operations. The Silver Spring activity, headed by J. W. Jenkins, has about 50 people who work primarily on U.S. Navy programs.

How would you like to move some 3,000 miles, from Anaheim to the Washington, D.C. area? From a relatively even year-around temperature and climate to hot-and-cold weather, complete with springtime snow flurries; from the mod-mod California environment to historic Washington, with its monuments, memorials, Civil War forts, Capitol, White House and other symbols of our 194-year-old nation.

Here are the reactions of a half-dozen Northrop Californians who have transferred from Anaheim to the Northrop Support Operations office in Silver Spring, Md., a suburb of Washington.

Dick Francis, manager of Administration, lived in East Anaheim and tired of maintaining property, now rents a three-bedroom apartment in the Washington suburbs. He says "all was going well—enjoying the snow and cold weather—until just before Christmas; Marilyn, who was not accustomed to the hazards of cold

weather, slipped on a patch of ice and broke her right leg. The kids, though, have continued to thoroughly enjoy sledding on the front lawn and skating on the local pond."

Ed Jezowski, formerly a resident of Fullerton, and who is the project controller, is a golfing bug. He and his wife often take weekend trips just to find and play different courses. "I am looking forward to making the rounds of East Coast links when the grass gets green again. There are plenty of public courses in the Washington area—as well as a number of good country clubs.

The winter has given me a nice rest which may have helped my game, whereas in California playing every weekend you live too close to your shortcomings."

Roger Eilertson, his wife and two children now live in the new city of Columbia, Md., halfway between Washington and Baltimore. Roger, formerly with the Swimmer Deterent Program, is a systems engineer in the office. A native of Alaska and fond of the open spaces, he feels there is something very special about the Washington area and the Appalachian Mountains. "As a family we enjoy hiking, skiing and swim-

ming. Columbia has fine new recreational facilities with plenty of open space between communities. But it is in these hills that America's causes were fought and history was made. A history nut like me gets a kick out of finding mini cannon balls and grape shot on the Antietam Civil War battlefield."

Also a history buff specializing in Lincoln, Dick Francis agrees with Roger, "Many of the buildings and historic sights still remain where Lincoln made history: Ford Theatre is restored, the house where he died has recently been restored, the Mary Todd Lincoln house in Georgetown is a private home, and the Civil War forts that protected the city still ring Washington."

Paul Potts, who has lived for 26 years in California, is a native of Kentucky and a follower of Confederate lore. "When the weather gets warmer, my wife and I are looking forward to making weekend trips into the South to see the restored towns of Williamsburg and Richmond, the Capitol of the Confederacy. Washington also has the Capitol building, the White House and Mount Vernon. In the fall when the leaves begin turning colors, we plan to drive north to New York and into New England."

Dick Viertel is the newest Californian to join the Washington office, having moved from Torrance in March. Dick, a coordination engineer, is a native

of New York State whose parents live 10 miles from the St. Lawrence Seaway. "What we like about the Washington area is the seasonal change," he asserts, "but it is really tough getting pro-football tickets."

In the summer he plans to take his family back to his northern New York family home and travel through other New England states "to beat the sultry heat and cool off for a while."

Dolly (Charlie) Brown, who transferred to Washington from the Polaris Project, lives in a highrise apartment in Silver Spring near the office. Accustomed to the liberal Orange County way of life, she is impressed with the fact that "these Easterners are real swingers, I never expected it in the stuffy East." As a new single girl in town, she comments, "there are tons of good looking and interesting men here who not only work hard but know how to play, too. Washington is fabulous, I love it, but I miss the California beach."

The difference in climate is one big factor between the West Coast and the East Coast. Come summer, the temperatures will climb into the 90's accompanied by an equal portion of humidity. Most Californians moving here have had to buy heavy winter coats for the first time. However, when the sultry weather sets in, the Californian's air-conditioned car will be the envy of those who say "wait until it gets hot."



LONG WAY FROM HOME

Former Californians from the Electro-Mechanical Division who now work with the Division's Silver Spring, Md., office are Ed Jezowski, seated, Dolly Brown, Dick Viertel and Roger Eilertson.



SOJOURN IN BRAZIL

The Don Weilands pause a moment in a street in Brazil during their years of voluntary mission work in the South American country.

IT'S IN BRAZIL

No Vegetables from Weiland's Farm

Don Weiland, senior engineer in the Electro-Mechanical Division, owns a farm in Brazil which he keeps as a remembrance of his work as a missionary in South America.

In 1961 Mr. Weiland, accompanied by his wife, Doris, and three children, took a leave of absence from Northrop to go to Brazil. They had learned that laymen were doing religious work with Brazilian natives through an interdenominational group. Each missionary had to support himself, however, and had to show a means of support while in Brazil.

The Northrop couple sold their home and car to support their trip and then to show they had a means of supporting themselves bought a 50-acre farm in the Brazilian highlands 600 miles west of Sao Paulo.

They joined a community of other missionaries in an area cleared in the jungle and went to work helping the natives. The group built a school and church.

Later they operated an orphanage. An important part of their work was teaching the Brazilians to become missionaries and pastors to their own people.

In addition to teaching and seeing the people learn more about the application of Biblical principles to their daily lives, one of the most rewarding experiences the Weilands recalled was taking in a six-months old boy who suffered from malnutrition. The child had wasted to only six pounds in weight. In three weeks they built the child back to a normal weight of 12 pounds.

One of their greatest problems was convincing their charges of the necessity for sanitary precautions. "They can't see a germ, therefore they can't be convinced that it exists," Mr. Weiland said.

Despite many problems, frustrations and primitive conditions, the Weilands look upon their nearly two years in Brazil as one of their brightest memories. "We even look back fondly now on a vacation we took to Igusau

Falls," Mr. Weiland said. "And that is the time we had to get out of the bus 25 times to help push it out of the mud!"

When they left to return to the United States, the Weilands kept their farm. "As long as we own the land," he said, "we still feel a part of the land where we spent such a wonderful two years. Perhaps we will go back after I retire. They are a wonderful people. They will give you the shirt off their backs — and for many of them the shirt on their backs is about all they own. We consider it one of the greatest privileges of our lives that we were able to work with them."

BARGAIN RATES

Motion picture fans among Northrop families are reminded of special discount rates made available through NRC at all Pacific Drive-in Theatres.

Regular adult admission tickets normally selling for \$1.75 may be obtained through NRC for just \$1.

Janet Johnson Competes In Junior Bach Contest

Janet Johnson, daughter of Gaile Johnson, Palos Verdes, recently participated in the Southern California Junior Bach Contest in Los Angeles. Mrs. Johnson is secretary to Al Taglieri, supervisor of Contracts for the Advanced Systems department.

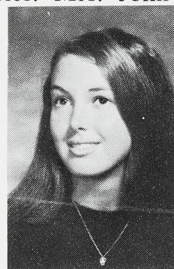
Janet, 18, was one of two pianists representing the Los Angeles Branch of the Music Teachers' Association of California. She won her spot on the program after winning two preliminary Junior Bach Contests.

A senior at Rolling Hills High School, Janet has been studying piano for eight years. In the Bach competition she played the

Prelude and Fugue XIII for the well-tempered clavichord.

Shortly after the Bach competition, Janet won second place in the annual competition sponsored by the South Bay Branch of the California Music Teachers' Association.

She plans to enter UCLA this fall, majoring in music.



Miss Johnson

NRC PLANS DAY AT HOLLYWOOD PARK

All Northrop ticket outlets are offering special discount prices on tickets for the annual "Northrop Day at the Races" set for June 27 at Hollywood Park.

The \$6.25 ticket is good for admission to the clubhouse, a buffet luncheon and a seat in an area reserved for Northrop visitors. Featured race of the day is the \$100,000 Hollywood Derby.

Bon Voyage to Evelyn Purpus



EVELYN PURPUS, secretary to Northrop President Thomas V. Jones, received the best wishes of her friends and co-workers at a reception held in her honor to celebrate her retirement after 20 years with the company. Mrs. Purpus and her husband, Jim, plan to tour the United States until fall and then to visit Europe on an extended trip before returning to California.

OPINIONS, PLEASE—Do You Think There Really is a Generation Gap?

R. O. "Mac" MacLaughlin, security clerk specialist, Electronics:

I don't believe we have a generation gap. Younger people just like to express their opinions more than older people. If they (older people) would express their opinions more, they probably would be just as vocal as the younger generation.



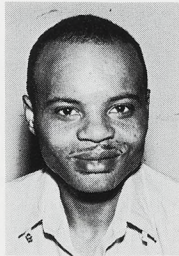
Margaret Pendergast, secretary, Electro-Mechanical:

There certainly is a generation gap and for me it goes both ways. I can't understand the old ones or the young ones.



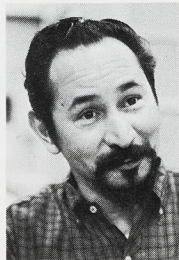
Robert Watson, saw operator, Aircraft:

Yes, and it seems to be caused largely by parents trying to lean over to reach the age of their children. I think you should start when the kids are young, show them respect and expect their respect in return. Understanding results. That helps a lot when the kids reach the restless age.



Eli Salas, shipping leadman, Ventura:

Over-all, I'd say there is a generation gap. Sometimes it can be very big—depending on the situation. There are a lot of factors involved. Personally, I don't think there is a generation gap between me and my children.



Carol Thornton, secretary, Electronics:

Oh, yes. The older generation seems to think the only way to do things is their way. The younger generation, however, tends to understand that everyone has to do things in a way that fits their own needs.



Clint Beebe, structural mechanic, Electro-Mechanical:

Speaking as the father of 16 children, I know there is a generation gap. I think it is caused by the environment we live in today which makes it difficult to raise children.



Suzie Howe, secretary, Aircraft:

In some ways, yes. If parents would relax and try not to be so serious, it wouldn't be so obvious in most cases. I don't approve of adults trying to act a child's age. It just doesn't work. Consider the child's side, recognize each child is different, and try to be fair and you are on your way to bridging the gap.



Eli Salas, Jr., plastic laminator, Ventura:

In some ways there is a generation gap. If a lot of parents would sit down and talk about things with their children instead of always using the "back in my day" position, then we'd have more communication and less gap. My father and I, for example, get along very well. He's good people.



OUTDOOR STYLE
Brazilian boy watches Doris Weiland bake bread in primitive oven.

Sounding Final Call for Tickets To Disneyland

This is a final reminder for Northrop families interested in taking part in the NRC Night at Disneyland from 8:30 p.m. to 1:30 a.m. May 23.

In the past, a last-minute demand for tickets has exhausted those available well before the actual date. NRC outlets will continue to offer tickets as long as they are available. No additional tickets can be obtained and tickets will not be available at Disneyland May 23.

The \$3.95 per person tab includes parking and unlimited use of all Disneyland facilities, exclusive of shooting galleries, during the stated hours.

Classified

Classified ad service is provided free of charge to all Northrop personnel. Ads for agencies, commercial enterprises and private businesses are not accepted. The Northrop News reserves the right to edit or omit ads. Obtain ad form C67 from organization clerk and mail ad to Northrop News, 170, zone 62. Ads are limited to one item and one ad per person each issue. Deadline is noon Wednesday, one week before publication.

Automobiles For Sale	
Volkswagen, 1967 1500, new tires, 2,000 mi. since o/haul, \$1,250. 213-756-7041.	A
T-Bird, 1955, chrome whls., 4-track stereo deck, new motor, \$1,350. 213-676-6603.	A
Pontiac, 1967 Bonneville, auto. trans., a/c, all power, \$1,850. 213-372-8903.	A
Rambler, 1963, \$150. 213-772-3677.	A
Oldsmobile, 1961, 325 h.p., p/s, p/b, \$350. 213-644-6464.	A
Fiat, 1962 1100, eng. rebilt., radio, \$200. 213-377-7670.	A
Maserati, 1961 3500 GT cpe., Weber carburetors, \$2,150. 714-525-2516.	A
Pontiac, 1963 Star Chief, 4-dr. sedan, p/s, p/b, a/c, 80,000 mi., \$700. 213-860-3512.	A
Station Wagon, 1962 Chevy II Nova, r/h, \$375. 213-326-9510.	A
Volkswagen, 1969 squareback sedan, auto., fuel injection, 9,000 mi., \$2,500. 714-535-6824.	A
Alfa Romeo, 1960 roadster, \$650. 213-341-3202.	A
Oldsmobile, 1968 sedan, AM-FM stereo radio, Comforton air, many extras, \$2,995. 213-754-2638.	A
Maverick, 1970, auto. trans., a/c, r/h, \$2,300. 213-820-3865.	A
Volkswagen, 1965 sedan, \$850. 213-371-9730.	A
Continental, 1956 Mark II, \$4,500. 714-523-7667.	A
Cadillac, 1959 Fleetwood, full power, a/c, \$300. 213-676-2613.	A
Dune Buggy, Max model, Corvair eng., \$1,600. 213-596-0370.	A
Volkswagen, 1964 8-pass. bus, 58,500 mi., \$1,100. 213-254-6678.	A
Plymouth, 1970 Barracuda 383, racing options, power d/brakes, \$4,100. 213-591-3968.	A
Truck, 1968 Ford ¾-ton, full power, a/c, trans. cooler, auto., 360 V-8 & camper, Open Road, cabover, sleeps 5, many extras, \$3,500. 213-378-2193.	A
Corvair, 1960 4-dr., \$125. 213-778-3859.	A
Volkswagen, 1964, mags, wide ovals, Holley, Mallory, headers, tape setup, \$1,000. 213-834-7589.	A
T-Bird, 1964, \$550; Rambler, 1965, \$600; station wagon, 1966 Nova, \$500; Firebird, 1967, \$1,375; Chevrolet, 1969 Malibu S.S., \$2,250 min. bids, Credit Union, ext. 1117.	A
MG 1100, 1965, all or parts, \$100. 213-644-2666.	A
Mustang, 1969 Mach I, 390 cu. in., auto. trans., d/brakes, AM-FM stereo, Ansen mags, \$2,800. 213-671-7875.	A
Station Wagon, 1962 Nova Chevy II, 6 cyl., r/h, \$500. Box 901.	A
Austin Healey, 1969 Sprite, 4-spd., d/brakes, tach, soft top, \$1,600. 213-324-9076.	A
Pontiac, 1965 GTO, 4-spd., mags, \$1,195. 714-521-1516.	A
Porsche, 1956 Speedster, new eng. & top, \$2,000. 213-631-7141.	A
Mustang, 1968, under warranty, \$2,000. 714-528-8764.	A
Ford, 1965 Galaxie 500 XL, p/b, p/s, a/c, rebilt. trans. & p/s, \$1,100. 213-943-9963.	A
Rambler, 1964 Classic 6, 4-dr., \$325. 213-372-5508.	A
Rambler, Marlin, spt. model, \$1,200. 213-676-4458.	A
Household Items For Sale	
Sewing Machine, Westinghouse, \$20. 213-346-7829.	B
Desks, 2, 16" x 46", brown, metal, 4-dwr., walnut formica tops, \$20 ea. or \$35. 213-784-9339.	B
Washer, Norge, auto., \$25. 213-324-5449.	B
Sewing Machine, portable, Morse, Fotomatic III zigzag, all attachs., \$100. 714-638-0815.	B
Rugs, 3, lt. brown tweed, dk. brown tweed, blue, \$20 or sell sep. 213-534-5197.	B
Desk, fits corner, white Nev-R-Mar top, chair, \$5. 213-377-6352.	B
Range, Wedgewood, gas, coppertone, apt. size, \$20. 213-532-7287.	B
China Cabinet, walnut, modern, 39", \$75. 213-325-3237.	B
Sewing Machine, Singer console, w/some attachments, \$45. 213-534-2570.	B
Bed, twin, bookcase h/board, \$10. 213-324-9130.	B
Bed Frame, mahogany, dble., \$5. 714-968-5343.	B
Dinette Set, chrome, 4 chairs, \$15. 213-390-2097.	B
Headboard, Bassett, cherrywood, for dble. bed, \$15. 213-327-0447.	B
Miscellaneous For Sale	
Surfboard, 7' 9" Bing Lotus, \$50. 213-325-2292.	C
Pool Table, 8' & 5' x 9' ping pong table, \$95. 213-320-3440.	C

Miscellaneous For Sale	
Acreage, wooded, 1 acre, pvt. trout stream, \$2,495. 213-862-3027.	C
Tent, 9 x 12 hvy. duty canvas, umbrella type, poles & stakes, \$30. 213-631-1466.	C
Pool Table, std. 4' x 8', new felt, access., \$85. 213-644-1720.	C
Tire, 600-13, never used, \$10. 213-672-2338.	C
Trail Bike, Honda 55, carrier, Bell helmet, \$110. 213-676-3886.	C
TV, RCA color, needs little repair work, black console model, \$75. 213-542-6072.	C
Rifle, Model 70 Winchester, .270 cal., Monte Carlo stock, \$70. 213-322-9145.	C
Boat, 20' inbd., wood hull fiberglassed, new manifolds, water hoses, strut bearing, engine align., \$400. 213-371-0210.	C
Lathe, 12" Atlas, \$175. 213-831-1745.	C
Lot, ½ acre bldg. site, Foothill Dr. in Agoura, city water, elec. & phone, \$8,500. 213-783-8271.	C
Guitar, Fender Mustang, case, \$150, & amplifier, Bassie, w/reverb, tremolo, \$125 or \$250. 213-833-5755.	C
Camper shell, 8' long, alum., wood paneled int., \$35. 213-675-4229.	C
Encyclopedias, World Book, all supplements, \$75. 213-328-7989.	C
Boat, 16½' Blue Water, Mercury inbd./outbd. drive, 120 h.p., \$2,750. 714-847-0648.	C
Holster, handgun-type, clamshell, quick action, \$30. 213-676-8817.	C
Stereo, 4-track for car, 12 trans. solid state, \$25. 213-633-2990.	C
Tape Player, Monarch 8-track, self-contained cartridge, 2 spkrs., \$45. 213-328-3020.	C
Drum Set, Jazz Master, \$85. 213-324-9769.	C
Golf Clubs, Wilson K28, D3 swing wt., 8 irons, pitching wedge, woods, \$160. 213-329-3476.	C
Motorcycle, 1969 Triumph, 650 cc Bonneville, \$1,200. 714-879-0676.	C
Mobile Home, 1969, 12 x 50, skirting, 25' awning, cpts., dps., metal storage shed, 20' cabana-porch, \$4,500. 213-328-3182.	C
Tires, Jeep, 4 Firestone 6:50x16 military tread, \$65. 213-545-6719.	C
Motorcycle, Honda 68, 175 cc Scrambler, dirt tires, trail sprocket, carry rack, \$400. 213-323-4766.	C
Metal Detector, White's, used twice, \$159. 213-866-2274.	C
Wheels, wide & tires for VW dune buggy, \$25 pr. 213-396-6739.	C
Dog, German shepherd, AKC reg., 1 yr. old, \$35. 213-644-8805.	C
Lot, 52 x 110', huge trees, walk Lake Gregory, San Moritz Club, Crestline, low dn., \$3,950. 213-377-1074.	C
Accordion, Sonola SS-10 professional, 120 bass, 11 treble, 3 bass switches, \$500. 213-340-2102.	C
Bicycle, boy's 26", \$15. 213-421-9949.	C
Acreage, 10 acres, Lancaster, \$850 acre. 714-968-2780.	C
Camper, cabover, sleeps 5, 1969 model, use with ½-ton or ¾-ton pickup, \$995. 213-865-6887.	C
Encyclopedia, World Book 1970 edition, \$150. 714-637-3358.	C
Golf Clubs, Walter Hagen woods 2 & 4, steel shaft, reg., med., \$15. 213-377-2160.	C
Home, 5 yrs. old, 3-bdrm., 2 baths, f/place, cpts., dps., GI or FHA, \$29,500. 213-835-5052.	C
Holster Set, complete, hvy. duty, for revolver, \$25. 213-962-2867.	C
Camera, Canon Super 8 auto. load, zoom auto. 518, telephoto lens, pistol grip, never used, \$130. 213-329-5353.	C
Boat, 8' dinghy, sabot rigged, dacron sail, f/glassed hull, \$150. 213-378-5494.	C
Trailer, 22' Kosy, \$30. 213-371-8590.	C
Acreage, 5 acres, Antelope Valley, east of new airport, utils., roads, \$400 dn. or \$83 dn. on land contract, \$8,250. 213-378-1026.	C
House Trailer, 30' w/A-frame, at Mammoth Trailer Lodge, \$800. 213-834-9205.	C
Boat, 15' fiberglass runabout, 55 h.p. Chrysler outbd., trailer, \$1,250. 714-645-0087.	C
Water Tank, open top, 3 x 4 x 1½ ft. deep, holds over 100 gals., fiberglassed p/wood, w/stand, \$30. 213-379-9670.	C
Tape Deck, Sony TC 355, 1 yr. old, \$175. 213-375-9946.	C
Radio, Hi-Fi Craftsman, cabinet w/turntable, AM-FM radio & record storage & another w/ spkr., \$50. 213-675-2514.	C
Motorcycle, 1966 Honda 160 cc scrambler, \$295. 213-376-3998.	C
Trailer, 1967 19½' Layton, self-contained, \$1,995. 714-897-0453.	C
Slide Projector, Honeywell Goldie 500 w., F3.5, 5" lens, \$40. 213-589-9503.	C
Tire, for motorcycle, 3.00-19 Dunlop 4-ply w/h.d. tube, \$10. 213-679-5371.	C
TV, color, 18" Magnavox, new pic. tube, \$150. 213-379-9836.	C
Boat, 1969 17' Arena craft tarpon, i/o 155 h.p. o.m.c. eng., all access., \$3,995. 714-524-7968.	C
Rims, 2 15" split w/tires & tube for ¾ Chev. truck, \$25. 213-371-2948.	C
Own-Your-Own Apt, 2-bdrm., 2 baths, all elec., dps., cpts., patio, pool, party rm., hobby shop, enc. 2-car gar., newly decorated, adults, can catry papers, \$24,000. 213-327-8047.	C
Hedge Clipper, elec., Sunbeam dble. edge w/level indicator, \$15. 213-675-0788.	C
Motorcycle, Honda 750 mini-trail, \$135. 213-834-0309.	C
Outboard Motor, 7½ h.p. Elgin, \$50. 213-862-9566.	C

Miscellaneous For Sale	
Trailer, for sleeping only, 8 or more, completely enc., cabana, self-contained, Ensenada, \$395 & pay park \$30 mo., incl. use of land & utils., 213-372-0840.	C
Trailer, utility, 6'x11', tarpaulin, lights, spare tire, \$85. 714-826-2007.	C
Engine, 383 Chrysler Wedge, 5-button torque-flite trans., Ramlog manifold, 2 Carter AFB carbs., access., \$250. 714-537-9205.	C
Slot Cars, 3 cars 1/24 scale, controller, box, other access., \$25. 213-328-6662.	C
Saxophone, alto, Majestic, \$175. 213-378-6405.	C
Juke Box, AMI stereo, 200 play, \$193. 213-676-2142.	C
Travel Trailer, 1968, 16½', sleeps 8, \$1,200 min. bid. Credit Union, ext. 1117.	C
Enlarger, 4x5 Omega D-2, Speed Graphic camera & misc. d/room equip., \$195 or sell sep. 213-831-6533.	C
Acreage, 10 acres, 342' frontage, 200 amp. service, 16'x42' alum. barn w/storage compartment, trees, near Medford, Ore., \$13,000. Box 902.	C
Dog, mini toy poodle, AKC reg., male, 2 yrs. old, \$60. 213-360-8800.	C
Shopsmith, speed changer, stand, jointer & jig saw attachs., \$175. 213-670-2564.	C
Ski Boat, f/glass, 14' Seafury, 2-cockpit, 40 h.p. Scott outbd., Little Dude trailer, \$950. 714-837-2757.	C
Organ, Vox Jaguar, amplifier, Viscount, 1 yr. old, \$600. 213-679-0547.	C
Pickup Bed, long, wide, off 1966 Ford, \$100. 213-596-3691.	C
Tape Recorder, stereo, Sony model. TC-530, complete w/bltin lid spkrs., \$235. Box 903.	C
Hi-Fi Cabinet, small, custom, for components & record storage, \$35. 213-672-1491.	C
Wanted to Buy	
Trains, old O and OO guage, elec. 213-346-3751.	D
Dune Buggy or a used Volkswagen to make a dune buggy. 213-370-7749.	D
Crib, good, used. 213-374-4944.	D
Drafting Machine. 714-524-0598.	D
Parts for 1940 Chev. 213-329-9484.	D
Household Furniture, misc., in very good condition, reasonable prices. 213-672-7611.	D
Ham Transceiver, Heath HW-16, 75 w. or equivalent, reasonable & in good condition. 213-377-5387.	D
For Trade	
Boat, 15' glass, 45 h.p. Merc. motor, trailer, trade for motorcycle up to 250 c.c. 213-328-1114.	E
Free (To Be Given Away)	
Kittens. 213-672-8629.	F
Dog, Australian sheep, 5 mos. old, female, needs yard. 213-674-8088.	F
Kittens, black. 213-434-5460.	F
Swing Set, has been disassembled. 213-675-8813.	F
Kitten, black, male, 9 wks. old, housebroken. 213-378-6824.	F
Rentals Offered	
Chalet, 3-bdrm., 2 baths, completely furn., sleeps 10, Lake Arrowhead, boat rental, \$150 wk., \$75 w/end. 714-528-2303.	G
Apts, 3-bdrm., 2½ baths, cpts., dps., bltins, all elec., unfurn., no children under 12 yrs., gar., Palo Del Amo, Torrance, avail. June 1, \$265 mo. 213-326-4944.	G
Cabin, Big Bear Lake, Moonridge, f/place, 2 baths, 3-bdrm., family only, \$125 wk., \$50 w/end. 213-326-7232.	G
Cabin, Big Bear Lake, \$30 w/end. 213-867-0662.	G
Cabin, Green Valley Lake, \$45 w/end, \$65 wk. 213-320-2002.	G
Chalet, Lake Arrowhead, No. Shore, furn., 3-bdrm., 2 baths, lake view, avail. June 15 to Sept. 1, \$150 wk., \$500 mo. 213-377-5936.	G
Cabin, Lake Arrowhead, close to lake & village, f/place, bar, patio, sleeps 6, \$75 wk., \$35 w/end. 213-845-5949.	G
Cabin, Lake Arrowhead, No. Shore, 200. ft. from lake, \$125 wk. 213-375-2255.	G
Roommate, to share apt., 2 bdrm., 2 baths, Spanish style, Inglewood, \$117.50 mo. 213-672-6313.	G
Apt, 1-bdrm., bltins, dps., pvt. patio, sub. parking, pool, \$155 mo. furn, \$145 mo. unfurn. 213-644-4235.	G
Rentals Wanted	
House, 5 or 6-rm., 1½ baths, dble. gar., 4 in family, no pets, June 1, So. Torrance or Lomita, will pay approx. \$210. 213-378-4991.	H
House or duplex, 2-bdrm., enc. gar., 2 adults, no children or pets, will do yardwork in part credit toward rental, prefer area S.W. Aircraft Div., \$200. 213-756-3472.	H
Child Care	
Child Care wanted, my home or yours, 17 mo. infant, days, \$25 wk. 213-677-0807.	I
Personals	
On behalf of my children, Kenny, Dennis, Jennifer & myself, I wish to express our gratitude for the generosity, concern & well wishes extended to us by my friends of the Ventura Div. DOREEN ROACH.	L
My family & I wish to thank the friends & co-workers of my husband, Chris, for their kind expressions of sympathy. AGNES BESER.	L
I wish to thank my friends at Northrop for the flowers & many expressions of sympathy upon the death of my wife. ERNEST GIMENEZ.	L

EDITOR'S NOTEBOOK

Accountants have a reputation for being notoriously conservative in their estimates. And the Ventura Division financial men are no exception.

Asked by the editor of the Northrop News for an estimate as to the number of charter members in their newly-formed National Association of Accountants chapter in the Conejo Valley, the answer was more than 40.

How many actually participated? Closer to 75. Thirteen of them, incidentally, were Ventura personnel.

* * *

The opportunity of reporting the very special events occurring in the lives of Northrop retirees is a welcome assignment for News staff members, especially when it gives us the opportunity of adding our congratulations to a couple marking their 50th wedding anniversary.

This is the case with Lennis H. (Jack) and Olive Carmichael of Huntington Beach who repeated their vows of 50 years ago April 5 in a double ring wedding ceremony before a host of friends. Mr. Carmichael was a Northrop Tooling employee for 20 years.

Adding novelty to their ceremony were the five granddaughters who served as bridesmaids, their grandson who was the best man, and two great grandchildren acting as ring bearer and flower girl. Our very best to Jack and Olive and may you see many more anniversaries.

* * *

You read and hear a lot about the trials and tribulations of our "now generation" and "senior citizens." We would like to say a few words about those in between, the parents of the former and children of the latter. This legion of tax-paying, PTA-attending, children-raising, debt-dodging, Little League-sponsoring, demonstration-ignoring, making-the-ends meet individuals could well be called the "pooped generation," all things considered.

We of the "pooped generation" do have our moments of glory, and our champions. We offer, for example, Elmer Harris of the Aircraft Division. Mr. Harris, a Contract Pricing coordinator, father of two teenagers, U.S. Navy veteran, husband of a school teacher, is a confirmed jogger and firm believer in worthy causes. This accounts for his participation along with his son, Charlie, in the recent Palos Verdes Walk Against Hunger.

The object was to raise money to combat hunger around the world. Each participant sought pledges from friends and acquaintances covering each mile they walked, jogged, ran or crawled over a 30-mile course up and down the hilly extremes of the Palos Verdes Peninsula.

The initial field numbered 1,275. Of these, 450 completed the entire 30-mile course in lapsed times ranging from 5½ to 14 hours. Charlie Harris breezed across the finish line in sixth place and very near the minimum time. Elmer Harris chugged across in about seven hours in 30th place. Between them the Harris boys figure to have added about \$150 to the total raised. We were glad to contribute \$6 to Mr. Harris' total as a fitting tribute to a member of the "pooped generation" who had the intestinal fortitude to take part in such a venture in the first place.

Students Learn Computer Hard To Beat In Games Or at Work

You can't beat the computer—whether it is trying to find a perfect number first or playing tic-tac-toe—19 students from Ladera Vista Junior High School, Fullerton, found out during a recent visit to Northrop's Data Processing facility in Hawthorne.

The tour was arranged by Herb Turner, Electro-Mechanical Division's manager, Business Systems, as a thank you gesture after two members of the class, Matt Crawford and Scott Johnson, both 13, attempted to solve a computer program problem for the division (Northrop News, Feb. 4, 1970).

The students, all of whom are studying computer programming, were shown the Northrop facility by John Bockhorst of NDP.

The junior visitors, ranging in age from 10 to 13 years, were permitted to work three problems on the NDP computer. Matt Crawford of the group operated the console with the advice of his fellow students. They worked

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Editor-in-Chief, **Bryan Weickersheimmer.** Editors: **Tony Cantafio, Electronics Division; Ivy Edmonds, Electro-Mechanical Division; Peter Toll, Ventura Division; Rosemary Hussey, Business Affairs.**

Mailing address: Northrop News, 170/62, Northrop Corporation, 3901 West Broadway, Hawthorne, California 90250.

Rides and Riders

Rides Wanted

7 a.m.—3:42 p.m.

Near Pico & Venice, Los Angeles. Cleo Morrison, Aircraft ext. 2133, 213-389-7858.

8 a.m.—4:42 p.m.

Imperial & Lakewood Blvd., Downey. Morris Brown, Aircraft ext. 4487, 213-861-8508.

Honoring All Ventura Contributors



RECEIVING PLAQUE from City of Hope representative June Dale are officials of the Ventura Division Dollar Donors Club, from left, Leo Karas, Bernie Sklar, Johnnie Via and Chuck Taylor. City of Hope is one of many charities supported by Ventura personnel.

BOWLERS WRAP IT UP

Sweepstakes Action Ends League Play

Two of the Ventura Division Recreation Club's three bowling leagues have climaxed with sweepstakes play and awarding of trophies while a third finishes up this month.

The team of Elaine Ainsworth, Hal Bixby, D. J. Manley and Tom Tapper walked off with the team trophy and the team high series trophy (2,368) at the Conejo Bowl in Thousand Oaks.

The team of Ben and Opal Biene, Dick Davis and Jeannine Childers won the team high game trophy with an 870.

Mr. Bixby won the Men's high series with a 680 while Al Pearson's 262 was the best individual game for the men.

The woman bowler honored for the highest individual series was Sue Carpenter with a 628. Shirley Roberts received a complimentary trophy for a 660 because she didn't bowl long enough into the season to qualify for the main trophy.

Some Honors

Jean Calvert shot a big 249 for the best women's individual game in Conejo play.

"Most improved" honors went to Jack Moeller, who increased his average eight points to 142, and Loretta Sherwin who boosted her average a dozen pins to a 96 average.

Receiving a special trophy for finishing last in the 10-team league was the quartet of Don and Mariam Ching, Mrs. Carpenter and Paul Scott. The team's especially appropriate name was "Not 'Nuff."

At Camarillo Lanes competition it was the team of Paul and Shirley Potter and Paul and Terry Krcha that came out on top of the 14-team race with 69 wins and 43 losses. Seven other teams, however, scored more than the 59,136 total pins knocked over by the champs.

Finishing second was the team of Bert and June Engstrom and Gini and Hap Rapp with 67½ wins, 44½ losses. At the bottom of the pile were Jan Sevenino, Pat Calderon, Don Jones and

NORTHROP NIGHT DISNEYLAND BUS RIDES AVAILABLE

Ventura Division personnel have the farthest to travel for the annual Northrop Night at Disneyland on May 23 so the Ventura Division Recreation Club is offering bus service for a modest \$2 round trip cost.

Buses will leave the Ventura Division parking lot at 6 p.m. on May 23, stop at the Woodland Hills Library at 6:15 and then pick up more Venturans at the West Valley Medical Center at 6:30.

"We already have one bus (45 people) sold and expect to sell another one," noted Eldie Lorentson of the Rec Club. He can be contacted at ext. 391 for information.

Ticket reservations, however, must be made through Kathy Miller in the Rec Club office, from 11 a.m. to 1 p.m. daily.



A HANDFUL OF HARDWARE

Conejo bowlers, from left, Hal Bixby, Elaine Ainsworth, Tom Tapper, D. J. Manley.

Northrop Families Invited To AF Day Open House

Air Force officials at the Air Force Flight Test Center, Edwards AFB, have extended a special invitation to all Northrop families in the Southland to attend their annual Armed Forces Day Open House.

The date is May 17; the hours 10 a.m. to 4 p.m.

This big free show includes acres of static airplane exhibits, indoor displays, "Forces for Freedom" demonstrations by military units, and air shows.

The Antiquers' flying demonstration is set for 11:15 a.m.; precision flying demonstrations by Bob Hoover (12:10 p.m.) and Skip Volk (1:30 p.m.) and a gigantic Air Force air show at 1 p.m.

The latter will include dozens of military aircraft used in current programs at the Flight Test Center. The giant USAF-Lockheed C-5 transport and the Northrop-built T-38 are included. And cameras are welcome.



PUNCHING IN AS USUAL

Reliable attendees, from left, Marion Leppert, Cathy Tremer, Duke Powell.

Three in Engineering Earn Honors For Year-Long Perfect Attendance

"Mr. Flores would like you to join him for lunch at a Newbury Park steak house," was the invitation over the telephone.

And the three invitees, Marion Leppert, Duke Powell and Cathy Tremer, all took the acting manager of the Engineering department up on his offer.

Mr. Flores feted the three at That Guy's Steakplace for their

perfect attendance during the year 1969. They were the only hourly Engineering personnel to avoid absence or tardiness during that year.

For Mrs. Tremer it was a routine year. The secretary to Dutch Youngers hasn't utilized any sick leave for the past four years. Mr. Powell works in Repro and Mrs. Leppert is secretary to Orv Kyler in the Mk. 30 office.

SUGGESTERS—Ideas Pay Off

(Continued from page 1)

tion. He suggested that rather than discard certain pre-preg material and buy some more for a different application, we should use the same stuff over again and save money. His idea won him \$140.

Dan Sullivan of the Machine Shop, came up with time-saving ways and procedures for milling parts and was awarded \$136 for the idea.

Mike Lanning, Tool Prepara-

tion and Metal Spray, suggested painting the 747 ram air duct before it is assembled to save money, time and trouble. He got \$121 for the idea.

Fred Berumen, a co-worker with Mr. Lanning, was awarded \$50 for suggesting a new way of acetylene supply for the spray booth and M. D. Smith won \$43 for a cost-saver in Metal Preparation.

Other recipients were Lee Bradley, \$22, and Roy Fox and Phil Ruisi, \$10 apiece.

APOLLO MEMENTOES DOCUMENT FIRST MAN ON THE MOON

Documentary memorabilia of the historic Apollo 11 moonshot can be purchased at very low cost from the office of the Ventura Division Recreation Club.

Twenty 35 mm color slides of the first men on the moon trip which retail for \$4.95 are only \$2 when purchased from the Rec Club in Room E-112 from 11 a.m. to 1 p.m. daily.

Super 8 mm and 8 mm film, a 50-foot reel, is just \$2. Eight by ten color photo sets are \$2 and an Apollo "Man On The Moon" book is \$1.

Also offered is a seven-inch 33⅓ rpm 14-minute recording of conversation between Apollo 11 and the Manned Spacecraft Center in Houston. The record, a \$2 retail value, costs Ventura personnel just 25 cents.

All of the Apollo 11 items are in limited supply.

Seeing Co-Workers Again



VISITING FRIENDS at the Ventura Division recently was former Trim and Drill Operator Greg Odin. Now an Army private first class stationed in Hawaii, young Odin visited former co-workers with his mother, Leta Gilbert, of Ventura's Manufacturing Reproduction.

NORTHROP NEWS

VENTURA DIVISION EDITION

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Savings Plan Changes to Be Automatic

Effective with the first payroll period starting after Aug. 1, 1970, deductions for the Northrop Salaried Employees' Savings Plan will be based on a selected percentage rather than a whole dollar designation.

New Application for Participation cards must be filled out by all eligible salaried employees—including those now participating in the Salaried Savings Plan—to authorize a percentage of base salary to be contributed to the Savings Plan. These new cards will be available beginning June 1 in the Industrial Relations office in each participating division or subsidiary.

A major purpose of the change is to insure that when a participant's salary increases his deduction will automatically change without submitting a new card.

The selected per cent must be between 2 per cent and 8 per cent and may be indicated in tenths of a per cent. Only those with three or more years of participation may designate more than 5 per cent.

The authorized percentage will be applied to base salary and control the amount of deductions. Deductions will be rounded to the nearest whole dollar. A participant still may change his percentage designation at the beginning of any fiscal quarter, if he desires to change his deduction amount.

The new application cards must be returned to Industrial Relations no later than July 13 to become effective in the first payroll week in August.

TO ENROLL AT USC

National Merit Scholar Eyes Ministry

The recipient of this year's Ventura Division Northrop-sponsored National Merit Scholarship is a wrestler who may go into the ministry.

William Richard (Rick) Massey, 17, is the son of Mrs. Rachel Massey. He will major in a liberal arts field "leaning toward the

possibility of the ministry" at the University of Southern California.

Young Massey has had a busy and varied career at Thousand Oaks High School. He is already known to many Ventura personnel for his work in the Junior Achievement company which is counseled by Venturans.

He was president of Junior Achievement in the Conejo Valley all of last year and half of this year. "A conflict arose when I became interested in the Campus Life group," Rick explained. "They met the same night and neither could change. I left JA to spend my time with the other group."

Campus Life, he explained, is a non-denominational Christian youth group which meets weekly. Rick hopes to continue his participation in the group at USC.

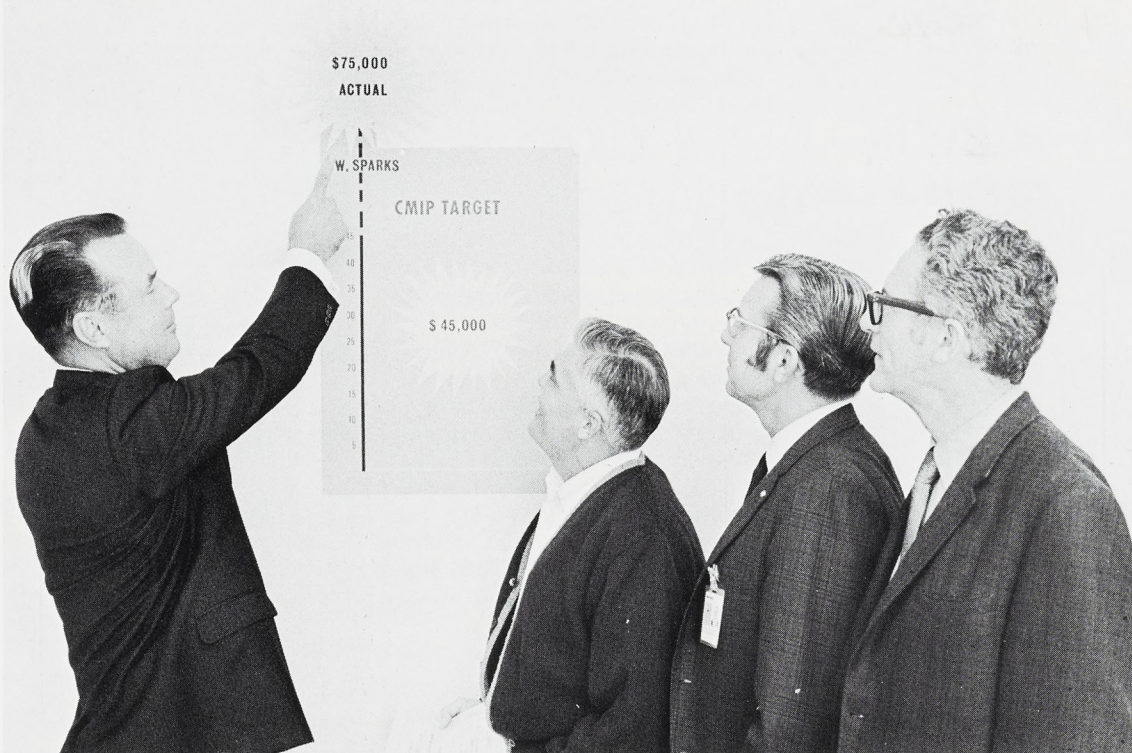
Accomplishments

As for the wrestling end of his activities, he was a varsity wrestler at Thousand Oaks High and finished second in the league in the 136-lb. class.

Academically he is also very strong. After his freshman year he received all A's and just two B's for a four-year average of 3.6. He has been in the respected California Scholarship Federation for the past five semesters.

Other activities include the

(See SCHOLAR, page 6)



WE SURPASSED OUR GOAL

Reports Warren Sparks to John Clancy, Chuck McCormick and CMIP Coordinator Ken Geller.

Their Effort to Save \$45,000 Resulted in a \$75,000 Savings

If you would like to cut your operating costs in half while improving your efficiency, there are two men in the Ventura Division's tool crib who know how to do it.

Chuck McCormick, supervisor of Tool Control, and John Clancy, inventory control analyst, received certificates of appreciation from Warren Sparks, director of Production Control, for their "truly outstanding effort" in Ventura's Cost Management Improvement Program.

"These men and the people who work for them were given

a goal of \$45,000 in savings which they had to achieve this fiscal year," explained Mr. Sparks. "With nine months of the fiscal year gone their savings have already topped \$75,000."

How did they do it? "They used their heads," Mr. Sparks said, "and cut the standard tools and supplies costs per direct labor hour from 25 cents down to 13.5 cents."

While cooperating with the Purchasing department the men also used these methods to achieve the savings:

1. Kept a tight control on inventory.
2. Started investigating new vendor sources for perishable tools and shop materials.
3. Increased their level of participation in the Corporate Award Purchasing program which allows lower cost because of increased volume.
4. Instituted tight salvage and re-use rules for damaged equipment and trained men in handling these tools once they had been properly repaired.
5. Worked more closely with Research & Development to come up with new methods in the tooling area.

More specifically, the men learned that certain hack saw blades which were used and discarded could be refurbished and re-used at considerable savings.

"Frequently, too, we found we could make a part from off-the-shelf materials in the plant for one tenth the price of purchasing the same part brand new," Mr. McCormick explained.

Judicious buying paid off as well. "We were buying plastic syringe-like devices to use in the potting process for 27 cents apiece. We found a less expensive one that did the job just as

(See CMIP, page 6)

Bond Drive Culminates This Week

Northrop's annual U.S. Savings Bonds program climaxes this week with the Memorial Day weekend.

"What better week to come forth and support your country," said Ventura Division Program Coordinator Tom Tapper. "Memorial Day commemorates the Americans killed in all past wars."

"It is an especially fitting time to renew your faith in the American way of life through participation in the Savings Bonds Program," he said.

The month-long program to sign up new participants and urge present participants to increase the amount of their savings is going "very well" at Ventura, Mr. Tapper said.

"We have a 90 per cent goal at Ventura," Mr. Tapper noted. "And I am confident the Ventura Division personnel will exceed that goal."

Since this is the last week to sign up and qualify for the percentage increase, Mr. Tapper urges Venturans to contact their area coordinators as soon as possible.

"With everyone taking Friday off to observe Memorial Day we expect to wrap things up by late Thursday," he said. He can be contacted at ext. 1451 for further information.

NASA Sets New Tests for HL-10

The National Aeronautics and Space Administration will begin a new series of flight tests next month to study the effects of using an engine during the landing approach of the Northrop-built HL-10 lifting body research vehicle.

The design and operational trade-offs of powered versus unpowered landing approaches for the proposed space shuttle are being studied. These trade-offs will determine whether the orbiter part of the shuttle must carry air-breathing engines into orbit for eventual use in the landing pattern. If the engines and additional fuel are not required, payload increases of up to 40 per cent may be possible. Data from the HL-10 flights will be used in this study.

(See HL-10, page 6)

VENTURA SUMMER PICNIC SET FOR AUG. 29 IN THOUSAND OAKS

The Ventura Division Recreation Club will sponsor a big summer picnic for Ventura personnel, their families and guests on Saturday, Aug. 29 at California Lutheran College in Thousand Oaks.

Dorothy Prychoda, president of the Ventura Rec Club, said the central campus area at Cal Lutheran allows use of an outdoor stage, large lawn area and swim pool.

Entertainment and games will be highlighted by a picnic lunch, ice cream and soft drinks from 11:30 a.m. to 3:30 p.m. The picnic will begin at 10:30 a.m. and end at 5 p.m.

There will be a nominal fee and a \$1 charge for adult guests, Mrs. Prychoda said. Tickets won't be on sale for another month, but mark that date on your calendar now.



RECEIVING SCHOLARSHIP CERTIFICATE

Robert Cole, Mrs. Rachel Massey, Rick Massey and Welko Gasich.

Northrop Men to Participate in AIAA Aircraft Design, Operations Meeting

Northrop Corporation men are tabbed for leading roles when the AIAA's Second Annual Aircraft Design and Operations Meeting is held July 20-22 at the International Hotel, Los Angeles.

Welko E. Gasich, Northrop vice president and Ventura Division

general manager, is the meeting's general chairman.

W. E. Woolwine, Aircraft Division vice president — Engineering, will serve as technical program chairman.

One of the highlights of the meeting will be the presentation

of the Northrop-sponsored Aircraft Design Award given annually for outstanding aircraft design nationally.

The scheduled program covers the broad spectrum of aircraft, from military to commercial, aircraft systems to aircraft operations, human factors to systems development.

Serving as chairman of a session on "Human Factors Interface Between Design and Operations" will be the Aircraft Division's Dr. Harold J. Coleman. Dr. Coleman will also act as moderator of a panel concluding the session.

Walter W. Watson, Aircraft Division, will chair a session covering "The Role of Simulation in Aircraft Design." Four Aircraft Division men, Joseph T. Gallagher, W. W. Koepcke, R. L. McCormick and W. G. Weldon, will present a paper at this session titled "Ground Based Flight Simulator for Air-To-Ground Weapons System Simulation."

In the session covering "New Developments in Aircraft Technology" Gordon R. Hall, Aircraft Division, will present a paper titled "Model Tests of Concepts for Reducing Hot Gas Ingestion in V/STOL Lift Engines."

Ventura Division's H. W. Barber and Ray Lavi will present a paper titled "Negative 'G' Surface Tension Fuel Systems" in the session on "Unique Solutions to Unusual Component Design Problems."

M. J. Jacobsen, Aircraft Division, and R. C. W. Van der Heyde, Wright-Patterson AFB, will present a paper titled "Acoustic Fatigue Design Information for Honeycomb Panels with Fiber Reinforced Facings" at the Structures and Materials session.

In the Dynamic Problems in Aircraft Design session, Carl J. Weyl, Aircraft Division, will present a paper titled "A Design Approach to Provide Satisfactory Spin Characteristics for a Modern Fighter Aircraft" with G. R. Casteel, of North American Rockwell Corporation.



IT WON'T HURT A BIT

Instructor Cliff Wells, right, offers more bandages as from left, Roger Anderson, Jim Gordon and Sharon Altman practice splinting the arm of Wally Kimball.

National Merit Scholar



JAMES V. HOLCOMBE, left, Northrop vice president and manager—Eastern Regional office, presents Northrop-sponsored National Merit Scholarship certificate to Robert J. Orr as his parents, Mr. and Mrs. Thomas P. Nelson, look on. Mr. Nelson is Northrop Public Relations representative in Washington, D.C. Robert plans to attend Colorado College.

NORTHROP NEWSMAKERS

Florence L. (Flo) Johnson, Ventura, has been awarded a Professional Designation in Management Systems: Manufacturing from the UCLA Extension.

Gage Snook, Aircraft, has been elected to the Executive Committee of the Alumni Association of

the Northrop Institute of Technology.

Dr. Dean Wolf, Ventura, was one of four judges for the Ventura County Science Fair sponsored by the Pacific Missile Range Section of the AIAA.

D. E. (Curly) Martin, Ventura, has been named to the Graphic Arts Production Advisory Committee of the Los Angeles City Unified School District's North Valley Occupational Center in San Fernando.

Jacobson Has Busy Off-Duty Slate of Activity

Harvey M. Jacobson of Northrop's Corporate Financial Planning and Control organization, has



Mr. Jacobson management development program.

For 1970-71, Mr. Jacobson has been named membership chairman for the Planning Executives Institute and director of membership for the National Association of Accountants, San Fernando Valley Chapter.

This week (May 20-27), Mr. Jacobson is presenting a workshop on Program Budgeting for the 20th Annual International Conference of the Planning Executives Institute at the Ambassador Hotel.

Roy Graboff, chief of Financial Planning for the Electronics Division, will assist Mr. Jacobson at the workshop by conducting a discussion on program budgeting and control.

'Bump' on 747 Holds Special Antenna

Ever notice the little bump on the big neck of the Boeing 747 jumbo jet?

The bump is actually a cavity-backed slot dipole which, in laymen's language, means a big radio antenna.

This special antenna allows the crew to talk with other parts of

the world via radio waves relayed by earth-orbiting satellites.

Two NASA satellites, the ATS-1 in synchronous orbit over the Pacific Ocean and the ATS-3 over the Atlantic, were involved in the first test transmission Feb. 16, 1970 which resulted in outstanding, high quality voice communications.

All 747's are equipped at the factory with this type of antenna which has been proven nearly ideal for use with communications satellites.

The VHF antenna, unique to the 747, is installed behind the downslope of the big bird's "neck" to assure no air drag penalty.



THIS LITTLE BUMP DOES A BIG JOB

Boeing 747's use special antenna to communicate via earth-orbiting satellites. Arrow denotes location.

Personnel Show Interest In First Aid Training

More than 20 individuals, the majority from Northrop Data Processing organizations in the Hawthorne complex, will receive American Red Cross Standard first aid cards next month.

Since April these individuals have been engaged in a unique lunch period training effort. Each attended two 30-minute classes per week.

Cliff Wells, a fire inspector from Protection Services at the Aircraft Division and certified Red Cross first aid instructor, has taught the classes. Stuart Tanner of NDP has coordinated the effort.

"The interest in this program

continues high and we have a second class almost full now," Mr. Tanner said. "It will begin training in late July and graduate in November."

Mr. Tanner added that many of the present students have indicated a desire to continue their training with an advanced Red Cross course. Tentative plans call for such a class to follow completion of the second standard class.

NASA Shopping List Tells More Ways to Save

Here is the second half of NASA's "Cost Reduction Shopping List"; the first portion was published in a recent edition of the Northrop News.

Cost-cutting ideas include:

Improve maintenance procedures.

Reduce frequency of reporting. Eliminate unnecessary meetings.

Prevent an accident.

Reduce computer print-out requirements.

Extend the shelf life of supplies.

Reduce classification requirements.

Use the less costly of automated vs. manual procedures.

Simplify checkout and test procedures.

Reduce contractor reporting requirements.

Consolidate storage.

Standardize where possible.

Take better care of instruments.

Release unneeded office, shop or storage space.

Consolidate deliveries.

Rearrange your work area for improved efficiency.

Eliminate or reduce graphics requirements.

Use less costly methods and materials.

Eliminate, reduce, or combine requirements at no loss of effectiveness of function.

Implement a new or unique method.

Conserve material, equipment, supplies or manpower.

Increase productivity and efficiency.

Eliminate "gold plating," use less costly options.

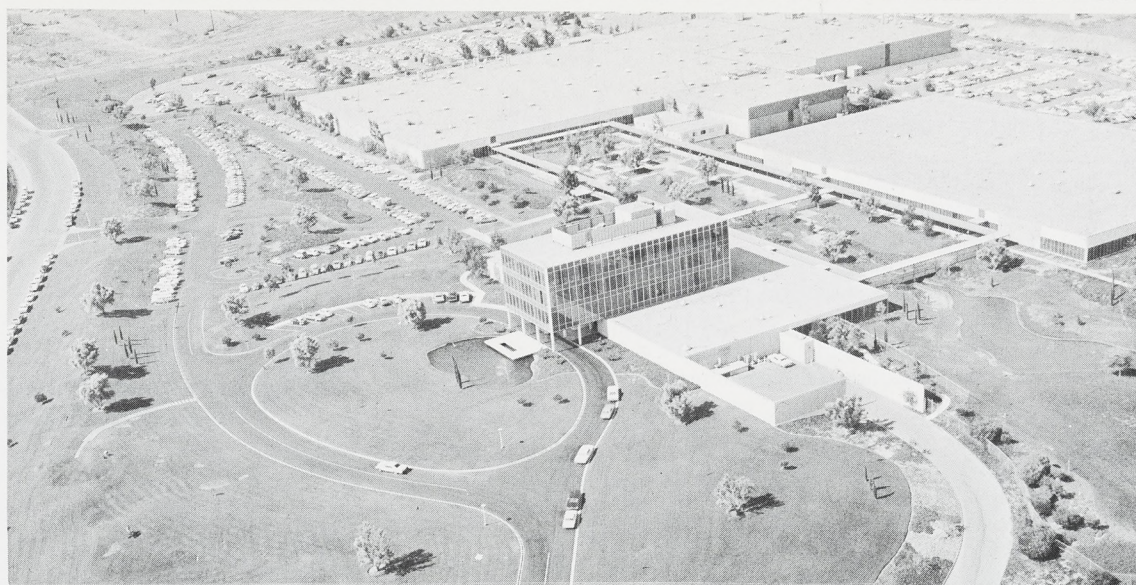
Provide cost-reduction direction to vendors.

A Photoscope Visit To Northrop Ventura

(First of a Series)



FRAMED BY APOLLO Earth Landing System main parachutes, Sewing Machine Operator Lita Gonzalez, works on another set of the 83.5-foot in diameter orange and white parachutes. Ventura has produced landing systems for all of America's astronauts in the Mercury, Gemini and Apollo programs.



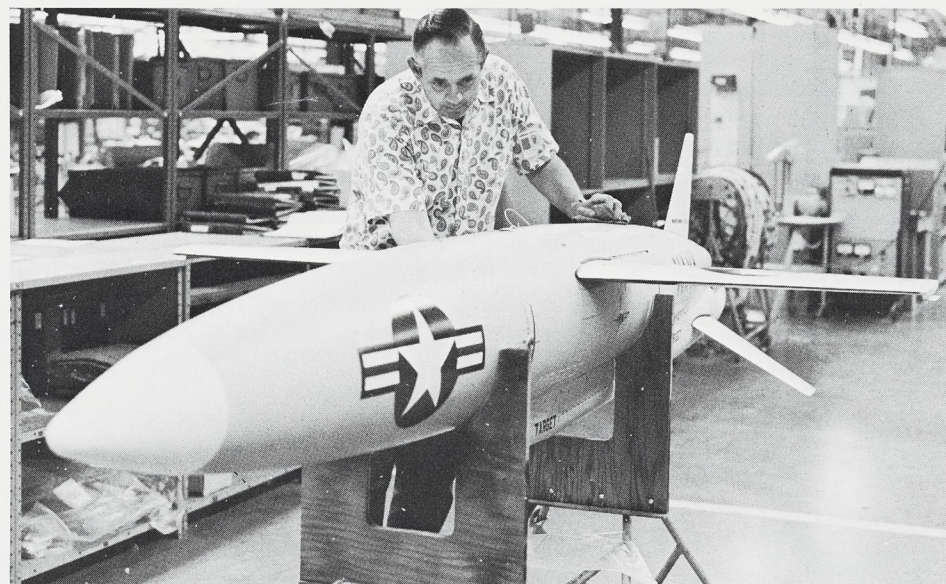
AERIAL VIEW shows circular driveway leading to Administration Building for Ventura Division. Engineering Building is at right and Manufacturing at top. Ventura has been located in Newbury Park since 1963. It is 55 miles from the Aircraft Division and 40 miles from downtown Los Angeles.



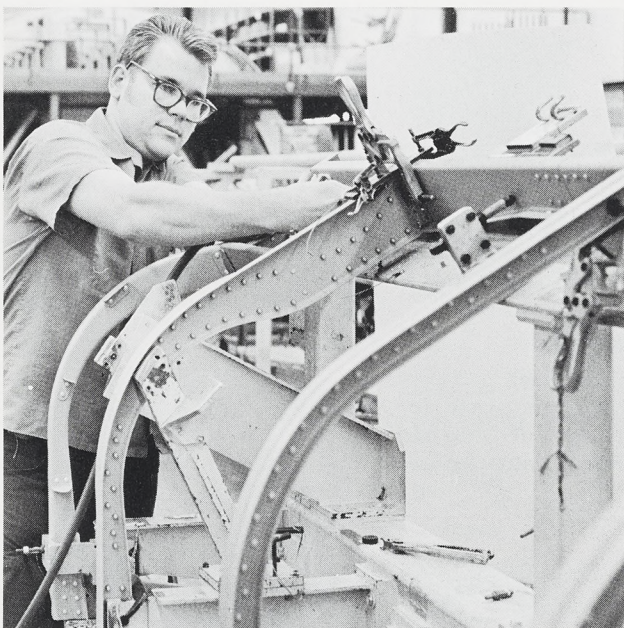
QUIET, GREEN MALL at Ventura is highlighted by a softly flowing stream. Lawn, ivy and trees accentuate simplicity of Engineering Building. Ventura's latest product area is in the development of underwater target drones for anti-submarine warfare training. A new Acoustic Test Facility to test the drone systems was not completed at the time these photos were made.



ENGINEERING makes up a major part of the Ventura personnel. Ventura engineers consider a broad variety of projects—from the biggest commercial jetliner to astronaut landing systems; from target drones to underwater drones. Wide capabilities and a broad spectrum of interests have spelled success for Ventura to date.



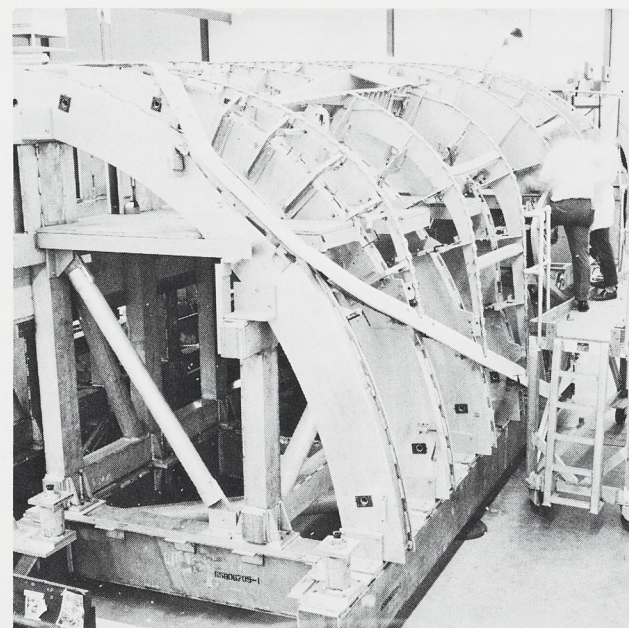
LATEST GENERATION in a series of Northrop target drones is the MQM-74A receiving an adjustment here by Dave Bennett. Over 1,000 of these radio-controlled aerial target drones have now been ordered by the Navy for gunnery practice. The jet-powered MQM-74A is the latest of 65,000 drones produced by Ventura.



WORK ON THE 747 jumbo jet wing fairings accounts for some 30 per cent of Ventura Division sales dollars. Here Douglas Main works on the vapor barrier of the fairing. In the background is the large jig for final assembly. Ventura also produces ejection seats and fuel tanks for the Northrop T-38 jet trainer and F-5 fighter.



THE ONLY NORTHROP division concentrating on use of reinforced plastics for aircraft, Ventura Division efforts are primarily in the 747 wing fairing program. Here Paul Stewart, Plastics Lamination foreman, assists Paulette Lynch while holding piece of honeycomb which is middle of plastic "sandwich."

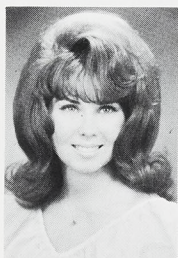


BIGGEST JIG at the Ventura Division is the Boeing 747 wing-to-body fairing jig in the Manufacturing Building. Ventura produces the fairings in reinforced plastic. After assembly, the 106 pieces are disassembled and sent to Boeing's Everett, Wash. plant for final assembly with the Aircraft Division-produced fuselage sections.

Jeannette Norden Proves Brains, Beauty Mix Well

The premise that beauty and brains do, on occasion, go hand-in-hand is graphically evidenced in Jeannette J. Norden, the daughter of Mr. and Mrs. John R. Norden of Gardena.

Mr. Norden is a member of the Aircraft Division Maintainability Analysis organization.



Miss Norden

In June Jeannette graduates Summa Cum Laude from UCLA with a grade point average of 3.7. She has been on the Dean's list each year she has been in UCLA. She will also receive departmental honors for her honors thesis, an original project exploring the use of certain drugs and natural neural transmitters and blockers on pain perception.

Jeannette became a placement student at El Camino College while attending South High of Torrance and was allowed to

graduate early to enter El Camino full time.

She was a contestant in the Miss Gardena beauty pageant in 1966.

At UCLA, Jeannette developed an interest in brain research and entered the department's honors program in 1968. She studied under Dr. W. J. Dowling, then under Dr. Jackson Beatty through a National Science Foundation grant. For the last year, she has been studying under Dr. John C. Leibeskind, pre-med advisor.

Vanderbilt University has recruited Jeannette for its honors graduate program. She has a fellowship and scholarship totaling \$5,000 for use in work toward a Ph.D. in brain research and pharmacology.

Jeannette is a member of the American Association for the Advancement of Science, Psi Chi, the National Honorary Society of the American Psychological Association, and Phi Gamma Mu, National Social Science Honor Society.

Woodrow Wilson Designate Honors Are Bestowed Upon Lance Bennett

Lance Bennett, son of Walter Bennett, an engineer with the Electro-Mechanical Division's Man-In-The-Sea Program, has been selected as Woodrow Wilson Designate.

This honor is given to college graduates who maintain a high academic record and who plan to make university teaching a career. The honor is named for President Woodrow Wilson who was a college professor and college president before becoming President of the United States.



Lance Bennett

As a result of the honor, Lance, who graduates from the University of California at Irvine, in June, has been offered a three-year postgraduate fellowship by Yale University. There he will work for his Ph.D. degree in political science.

A Good Deal

The Yale offer, Mr. Bennett reports, was especially gratifying not only because of the honor, but also because his bride of six months, Patti, has a scholarship to Wesleyan University, only 20 miles from Yale.

During the summers of 1967 and 1968, Lance worked at the Northrop Aircraft Division on the 747 tooling program.



RETIREE GEORGE STELLMACHER AND TROPHIES
Stalking wild game with bow and arrow requires patience, stamina.

HUNT THE HARD WAY

Archer Has Formula for Keeping Young

George Stellmacher has a recipe for keeping young after retirement. It is tracking wild game with a bow and arrow.

Mr. Stellmacher, who retired as a plumber with the Electro-Mechanical Division's Plant Engineering in March 1968, took up his hobby one month and four days after retiring at Anaheim. On his first excursion to Santa Catalina Island, he shot a wild goat.

Although he took up wild game hunting with bow and arrow in April 1968, Mr. Stellmacher has been an active archer for the last 11 years. In 1959 he happened to pick up a bow left from an NRC Archery Club that was no longer active. He liked

the feel of the bow and started shooting with a broken arrow he repaired. Later he joined a local archery club to learn the technique and then helped revive the NRC Archery Club at Anaheim which he headed as commissioner for the next 10 years. He was also active in the NRC Bible Club.

Comparisons

Last summer Mr. Stellmacher made a hunting trip to Wyoming where he shot antelope and deer with a rifle, but found it less fun than stalking game with the bow.

His favorite hunting ground now is Santa Cruz Island where large wild sheep that descended from stock left by Spanish explorers abound. His latest expe-

dition resulted in two trophies, a young ram and an old ram with a 21½-inch horn span. He intends to mount the heads of the trophies himself.

Stalking game with a bow is more difficult than with a gun, he reports. He wears a camouflage suit and has to work himself within 25 or 30 yards of his quarry to get an effective shot with his 65-pound-pull bow and steel tipped arrows. He works to get above and down wind of his quarry.

All the fun of his hobby is not just in stalking the game, he reports. Part is wondering where your next meal is coming from. On his last trip to Santa Cruz he shot a young ram just before dark. The animal fell backward into a deep ravine.

Not So Easy

"With darkness on me and four miles to camp, I decided to stay there until morning, sleeping on rocks behind a cactus bush," he said. "I had been up since 4:30 a.m. and my food stock for the day was only two 1½-ounce boxes of raisins, an orange and a 1½-ounce package of peanuts."

After a night under the stars he got up at 4:30 and unsuccessfully stalked some sheep that had disturbed him in the night. He then made his way back to the base camp after a three-hour climb over the hills.

"But that's part of the fun and is what keeps me young," said Mr. Stellmacher who is 67 years old.



TAKING AIM
Equipment is important.

WE ASKED THEM—What Is Your Answer to the Pollution Problem?



Ninfa Cirre, tape preparer, Electro-Mechanical:

Only by making people responsible. Cars may cause smog, but smog is only part of the pollution problem. I remember how sad I was to return east recently and see what pollution had done to the beautiful lakes back home. Nothing can be done until people learn to care.

Henry Still, assistant Public Relations director, Corporate:

A person in the United States consumes material at a rate 50 times greater than a person in a nation such as India. One of the greatest things we can do is to "power down" our consumption of non-essential material goods. Pollution is a direct measure of our careless use of natural resources.

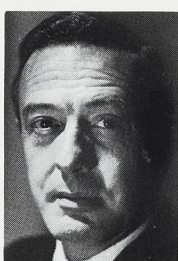


Jean Thompson, MTST operator, Ventura:

The first step is to educate the people to the facts and that since it endangers all of us we all must do our share. It's got to be a mass effort. We must be willing to sacrifice one thing, a comfort or luxury, in order to gain another thing, a better environment.

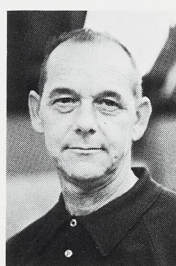
Rudy Ohnersorgen, test engineer, Electronics:

I don't think there is one singular answer to the pollution problem. It's going to take the total concentrated effort of the government and industry to impose strict controls to find cures to save our environment.



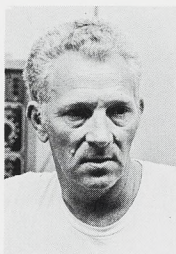
Don Glascoe, optical lab technician, Electro-Mechanical:

Since the automobile seems to be the worst offender, it seems to me that we'll have to have new smog control devices that will do the job without bankrupting us by requiring new engines or more expensive gasoline.



Terry Knott, administrative secretary, Aircraft:

Spend more money on research. Determine exactly what causes pollution and what can be done to prevent it. No problem is insurmountable, if sufficient resources are applied to its solution.

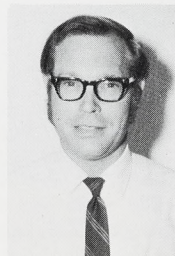


L. E. Keener, spot welder, Ventura:

We've got to start being more clean in everything we're doing. Taking good care of old automobiles is a good example. Another example is litterbugging. There are lots of things we can do.

Bert Wellbaum, systems integration engineer, Electronics:

I feel the first thing that has to be done is to isolate the direct causes of pollution. Once this has been established, then a workable program by the major contributors to pollution should be implemented.



Classified

Classified ad service is provided free of charge to all Northrop personnel. Ads for agencies, commercial enterprises and private businesses are not accepted. The Northrop News reserves the right to edit or omit ads. Obtain ad form C67 from organization clerk and mail ad to Northrop News, 170, zone 62. Ads are limited to one item and one ad per person each issue. Deadline is noon Wednesday, one week before publication.

Automobiles For Sale

Plymouth, 1962, V-8, 4-dr., r/h, \$250. 213-532-7287. A

Mustang, 1965 289, auto. trans., p/s, r/h, new Goodyear Polyglas tires, \$950. 213-675-2514. A

Porsche, 1963 1600 S, new int., trim, bat., tires, carbs. rebilt., \$2,000. 213-271-1201. A

Mercury, 1966 Comet Caliente, 2-dr. h/top 390, r/h, auto., air, \$1,150. 213-328-3306. A

Station Wagon, 1957 Ford Del Rio, auto. trans., r/h, \$185. 213-325-3404. A

Ranchero, 1966 Ford, V-8, auto., hitch, radio, \$1,195. 805-252-5846. A

Station Wagon, 1959 Pontiac, a/c, \$175. 213-673-4110. A

Renault, 1958, \$150. 213-676-8833. A

MGA, 1958 convt., new clutch, recently o/hauled, \$650. 213-423-1363. A

Chevrolet, 1965 Impala S.S., fact. air, \$1,299. 213-834-8647. A

Volkswagen, 1966 sunroof, r/h, \$1,000. 213-545-3349. A

Volkswagen, 1968 Freedom Camper w/10 x 10 cabana, \$2,850. 213-867-1933. A

Oldsmobile, 1969 Cutlass Supreme, fact. warranty, \$2,700. 213-865-5356. A

Ford, 1966 500XL, a/c, p/s, p/b, r/h, \$1,350. 213-349-4932. A

Morgan, 1967 GT4+4, 14,000 orig. mi., \$3,400. 213-545-5045. A

Chevrolet, 1963 Impala, V-8, stick, many extras, \$800. 213-943-3516. A

Scout, 1963, o/size wheels & tires, o/drive, \$1,450. 213-835-0805. A

Toyota, 1967 Corona, 4-dr., r/h, auto., \$1,000. 213-860-3512. A

Lincoln, 1964, all power, 4-dr., \$1,500. 213-981-8476. A

Volkswagen, 1967, 46,000 mi., radio, \$1,150. 213-786-1752. A

El Camino, 1960, recently reconditioned, new eng., trans., \$1,000. 213-327-0447. A

Austin Healey, 1969 Sprite, 4-spd., d/brakes, tach, soft top, \$1,600. 213-324-9076. A

Chevelle, 1965, stick shift, r/h, \$650. 213-370-6113. A

Mustang, 1966, 30,000 mi., \$1,300. 213-374-3331. A

Plymouth, 1968 Spt. Satellite, p/s, min. bid., \$1,200. Credit Union ext. 1117. A

Volkswagen, 1969 Squareback sedan, auto., fuel injection, under 10,000 mi., \$2,400. 714-535-6824. A

Karmann Ghia, 1960 convt., needs work, \$300. 213-377-0821. A

Volkswagen Bus, 1965, Porsche powered, wide whls. & tires, \$1,695. 213-396-6739. A

Dune Buggy, VW, street legal, f/glass, many extras, \$1,475. 213-370-2876. A

Corvette, 1966, 327, 350 h.p., AM-FM radio, posit., pwr. d/brakes, \$2,500. 213-372-8330. A

Falcon, 1960, \$200. 714-535-6194. A

Chevrolet, 1963 Impala, V-8, p/s, p/b, r/h, 53,000 mi., \$750. 213-434-3564. A

Chrysler, 1955 Imperial, 4-dr., full power, \$250. 213-325-5875. A

MGBGT, 1968, 11,100 mi., AM-FM radio, stereo spkrs., new brakes, \$2,395. 213-379-5042. A

Maserati, 1961 3500 GT cpe., \$2,150. 714-525-2516. A

Camper, 1966 Ford Supervan, big 6, stick, air, r/h, sleeps 4, \$1,950. 213-329-7994. A

Household Items For Sale

Couch, convts. into bed, \$30. 213-390-2097. B

Rockers, uphol., swivel-type, \$45 ea. 213-675-7965. B

Knitting Machine, Strigo Swif-O-Matic, dble. bed, \$200. 213-674-6165. B

Stove, O'Keefe & Merritt, \$50. 213-876-7902. B

Dryer, white, pushbutton, 220 V. Hot Point, hvy. duty, \$150. 213-368-1269. B

Range, apt size, \$33. 213-532-1824. B

Crib & mattress, \$15. 213-374-5133. B

Sewing Machine, portable, case, \$20. 213-327-0493. B

Refrigerator, Kelvinator, avocado green, \$15. 213-834-0586. B

Sewing Machine, Singer Mod. 221 Feather-weight, buttonhole attach., card table, \$70. 213-327-3922. B

Mixer, Dormeyer, hvy. duty, bowls, juice & grinding attachments, \$25. 213-375-9949. B

Tables, 2 step end & round coffee, mahogany w/Formica tops, \$35. 213-644-1581. B

Miscellaneous For Sale

Boat, 14' fiberglass, trailer, many extras, \$175. 213-374-4944. C

Camper, cabover, Open Road, dble. & single bed, 3-burner stove, extras, fits 8' bed, \$500. 213-378-2193. C

Miscellaneous For Sale

Stereo, portable AM-FM combination, 4-spd. record player, \$75. 213-328-3020. C

Parakeets, variety of colors, \$3.50. 213-421-9949. C

Lot, 3-acre bldg. site, bet. Woodland Hills & Westlake Village, horses O.K., many trees, utils. in, low dn., \$28,500. 213-783-8271. C

Surfboard, 7'9" Bing Lotus, 1 yr. old, \$50. 213-325-2292. C

Mobile Home, 1969, awning, skirting, many extras, adult park, \$4,500. 213-328-3182. C

Engine, 1962 Corvair, 3-spd. trans., comp. rebilt., \$200. 213-376-4250. C

Stepping Stones, concrete, 14, grey, smooth, 2'x2'x2", \$15. 213-429-0851. C

Tent, Army surplus, 8-man, \$30. 213-375-1685. C

Vacuum Cleaner, Electrolux canister Model L, all attachs. incl., \$45. 805-947-6179. C

Engine, rebilt. 283 Chev., heads, manifold, carb., extras, \$125. 213-325-3452. C

Tape Recorder, Teac Mod. 1500, stereo, 4-track auto. reverse, extras, \$225. 213-329-6622. C

Mini Bike, 3 h.p. Briggs & Stratton, \$100. 714-635-1359. C

Wedding Ring Set, interlocking, size 5, full carat, white gold, \$300. 213-645-6510. C

Tires, 2, for Morris Minor, w/wheels, \$20. 213-632-2642. C

Springs, leaf-type, o/load, Chev., Ford, w/leaf rear, \$8.75. 213-927-0678. C

Trailer, for go-kart, pneumatic tires, \$35. 213-376-4032. C

Camper shell, 42" beds, cabinets, boat rack, \$250. 213-881-2604. C

Trail Bike, 1970 Yamaha LST, \$325. 213-757-3407. C

Gun, S&W 9mm auto., never used, mod. #39, \$150. 213-532-7175. C

Motorcycle, 1966 Yamaha, street Scrambler 250 cc, \$375. 213-327-6373. C

Piano, baby grand, \$600. 213-676-4297. C

Motorcycle, 1967 S-90 Honda, \$175. 213-757-6960. C

Mini Bike, Bonanza, mag. wheels, \$125. 213-644-2375. C

Tuner, tube type, FM Harmon Kardon, stereo, \$50. 213-327-8927. C

Encyclopedia, World Books, \$70. 213-328-7989. C

Car Cooler, Wright Evaporative, 12 V. w/transformer for 120 V., \$9. 213-329-2893. C

Acreage, 2.5 acres, secluded, borders national forest near San Juan Capistrano, 2,500' elev., \$14,500. 714-528-4553. C

Pool Vacuum, Deluxe head, 8' ext. handle, 20' x 1 1/4" dia. flex vinyl hose, \$20. 213-323-6717. C

Bowling Ball, black, 16-lb., \$5. 213-376-4831. C

Engine, Chev. 327 comp. w/new Powerglide, \$550, other parts, various prices. 213-679-4860. C

TV, 23" RCA color, \$100. 213-675-9409. C

Shotgun, Browning over/under, 30" bbbs., full & modified, 12 ga., \$300. 805-495-7550. C

Engagement & Wedding Ring Set, never worn, \$65. 213-327-3932, 213-323-8874. C

Cups, saucers, 10 Heisey, pink, \$8.50 set or \$75. 213-324-4186. C

Wheels, 4 mag & new tires, \$150. 213-599-2254. C

Reducing Machine, Stauffer, \$175. 213-672-9449. C

Duplex, 2-story, 3 yrs. old, \$17,000 equity, will handle, \$49,995. 213-676-6006. C

Motorcycle, BSA 650 cc, \$750. 213-828-4713. C

Acreage, 5 acres, nr. Galileo Hill, California City, frontage rd., can be subdivided, \$2,000 & take over \$80 mo. pymts., \$7,950. 213-638-8608. C

Transmission, h.d. truck, 4-spd., for Chev. pickup, \$30. 213-323-6786. C

Sailboat, 13 1/2' O'Day Widgeon, fiberglass, access., American trailer, \$650. Box 1001. C

Travel Trailer, 1968, 16 1/2', sleeps 8, min. bid \$1,200. Credit Union ext. 1117. C

Helmets, 2 arc welders, \$3 ea. 714-838-7161. C

Home, 3-bdrm., 2 baths, 5 yrs. old, cpts., dps., 2 blks. to elementary school, new G.I. appraisal, \$28,000. 213-835-5052. C

Pups, black & silver, female, German shepherds, born April 3, mother papered, \$25. 213-425-3786. C

Bicycle, boy's 26", \$10. 213-675-6206. C

Lawn Sprinkler, crawling-type, follows hose w/auto. shut-off, \$10. 213-670-2564. C

Rifle, Mod. 70-270, postwar, sling, scope, \$175. 714-493-4173. C

Bicycle, 2 girl's 26", \$15 ea. Box 1002. C

Estate, leasehold, on Col. River at Parker, Calif. side, \$10 mo. 213-862-3027. C

Tape Recorder, portable, monaural, \$50. 714-523-2495. C

Acreage, 5 acres, Antelope Valley, east of new airport, utils., roads, \$400 dn., or \$83 dn. on land contract, \$8,250. 213-378-1026. C

Lawnmower, 17", hand-type, \$20. 213-830-5485. C

Wheels, 2 15" for VW w/worn tires, \$4 ea. 213-375-8536. C

Rifle, Remington Mod. 788 in .44 mag. cal., \$85. 213-534-0577. C

Camel Saddle, from Pakistan, carved & brass bells, \$20. 714-968-5343. C

Lot, 52' x 110', huge trees, walk Lake Gregory, San Moritz Club, Crestline, \$3,850. w/low dn. 213-377-1074. C

Slot Cars, 3 1/24 scale cars, controller, carrying box, other access., \$20. 213-328-6662. C

Miscellaneous For Sale

Black Light, complete w/fixture, 4' lge. dia. tube, used 1 hr., \$15. 213-379-2628. C

Poker Table, 8-pl., Wells w/removable ash-trays, for glasses & chip slots, used twice, \$50. 213-430-8378. C

Table Tennis Set, needs work, \$10. 213-671-2776. C

Cabin, Crestline, completely furn., 2-bdrm. plus full glassed-in porch, sleeps up to 10, 6 blks. from Lake Gregory, \$10,000. 213-532-1817, 213-326-2590. C

Luggage Carrier, enc. rack & dressing rm. for station wagon, \$40 or sell part. 213-754-5358. C

Own-Your-Own-Apt., all elec., 2-bdrm., 2 baths, patio, pool, party rm., hobby shop, enc. 2-car gar., adults, can carry papers, \$24,000. 213-327-8047. C

Bandmaster, telecaster, case, shure ball mike, fuzztone, many extras, \$640. 213-867-0662. C

Cabin Cruiser, 17 1/2', 55 h.p. Mercury out-bd., bait tank, trailer, \$825. 213-596-0024. C

Wanted to Buy

Gun Cabinet, w/glass door, need capacity for min. 4 rifles. 213-644-1720. D

Souvenirs, German or Japanese, of WW II, no firearms. 213-375-4312. D

Travel Trailer, small, Aristocrat Lo Liner or similar. 213-378-5494. D

Trailer Hitch, E-Z Lift, suitable for camping trailer. 805-482-3893. D

Basketball Hoop & backboard, reasonable. 213-675-5800. D

Trail Bike, Honda 50, 70 or 90, in good shape & reasonable. 213-373-5223. D

Volkswagen, good running w/low mileage. 213-635-2426. D

Empty Brass for reloading 38 - 243 - 270 - 264 mag. 213-863-2977. D

Speaker Cabinets, 2 for 15" spkrs., or R-J cabinet, especially interested in R-J design. 714-832-6979. D

Bedroom Set, w/1 or 2 twin beds. 213-371-4233. D

Auto for transportation, low mileage, auto. trans., in good condition. 714-847-5938. D

For Trade

Trailer, 1969 Aljo, self-contained w/hitch & hvy. duty batt. or trade for smaller trailer or for camper & truck. 213-830-5284. E

Free (To Be Given Away)

Kittens. 213-644-4077. F

Kittens, 9 wks. old, 1/2 Siamese, housebroken. 213-423-2395. F

Kittens, 3 litters to pick from. 213-676-3692. F

Kittens, part Manx, female calico & striped male, housebroken, 6 wks. old. Box 1003. F

Kittens, 4, 7 wks. old, litter box trained. Box 1004. F

Kitten, male, 9 wks. old, housebroken. 213-833-6135. F

Kittens, 6 wks. old, box trained. 213-370-2828. F

Rentals Offered

Metal Detectors, Goldak Mod. 720, \$10 day, \$15 w/end, \$50 wk. 213-674-8088. G

Trailer, 30', at Mammoth Trailer Lodge, Mammoth Lakes, sleeps 6, \$50 wk. 213-834-9205. G

Cottage, Ocean Bch., San Diego, near Mission Bay, make reservations now, \$70 wk. 714-826-2007. G

Chalet, Lake Arrowhead, No. Shore, furn., 3-bdrm., 2 baths, avail. June 15 to Sept. 1, \$150 wk., \$500 mo. 213-377-5936. G

Cabins, Idyllwild, 1 & 2 bdrm., stream, patio, f/place, \$30-\$35 w/end, \$70-\$90 wk. 213-868-8040. G

House, unfurn., 3-bdrm., 1 1/4 bath, cpts., dps., bitins, covered patio, water pd., avail. July 10, W. Canoga Pk., \$285 mo. 213-322-7716. G

Apt, furn., 1-bdrm., 3 blocks from Northrop, \$105 mo. 213-676-4734. G

Cabins, Big Bear Lake, Moonridge, f/place, 2 baths, 3-bdrm., family only, \$125 wk., \$50 w/end. 213-326-7232. G

Cabin, Lake Arrowhead, North Shore, 200 feet from lake, \$125 wk. 213-375-2255. G

Room, lge. bdrm., kitchen privileges, near Crenshaw & Torrance Bldvs., \$20 wk. 213-328-4992. G

Cabins, Lake Gregory & Crestline, sleep 6, \$25 w/ends; \$60 wk. 213-391-2040. G

Apt, 2-bdrm., close to Northrop Haw., \$80 mo. 213-754-1611. G

Studio Apt, 3-bdrm., f/r, 1,800 sq. ft., 2 1/2 baths, f/place, dps., cpts., newly decorated, few blocks from Plant 1, no pets, avail. June 15, incl. elec., \$265. 213-676-5425. G

Chalet, 3-bdrm., 2 baths, completely furn., sleeps 10, Lake Arrowhead, \$150 wk., \$75 w/ends. 714-528-2303. G

Rentals Wanted

House, duplex, triplex or apt, 2-bdrm., furn., unfurn., yard or patio, 2 adults, pets, 15 or 20 min. from Inglewood, \$150-\$195. 213-676-8817. H

Child Care

Child Care offered, vicinity Redondo Beach Blvd. & Prairie, fenced yd., playthings, lunch, snacks & nap. 213-370-2450. I

Child Care offered, 2 yrs. & up, fenced yd., hot lunch, experienced, references, 112th near Crenshaw. 213-677-5929. I

Personals

Woman w/2 children wants to manage apt. house for rent. 213-329-7998. L

EDITOR'S NOTEBOOK

Since Nov. 9, 1969, when we wrote about Paul Perencevic, we have received calls from individuals and agencies interested in his story. Mr. Perencevic, then of the Aircraft Division, had battled all his life against serious eye defects. Although he was once a teacher, he had given this up when his ability to see left too much to be desired. Ken Peterson of Northrop told Mr. Perencevic of a friend who had a similar problem who had gotten special glasses from a Dr. William Feinbloom of New York City.

Mr. Perencevic visited Dr. Feinbloom and obtained glasses that increased his visual efficiency from 20 per cent of normal to 80 per cent. Joe Miller, an Aircraft Division employee and Mr. Perencevic's uncle, reports he has left Northrop to fulfill a lifetime dream. Mr. Perencevic is now in Bangkok, Thailand, with the Peace Corps. He is scheduled to begin teaching soon at the University of Bangkok.

* * *

The efforts of NRC club leaders to prepare attractive, and informative, bulletins on behalf of their activities have attracted our attention over the years. Recently, Spud Monahan wrote an introduction to a bulletin for the Northrop Radio Club that we feel is worthy of sharing. He said: "In these days of pollution, disposal, and otherwise doing your ecological thing, it's comforting to realize that radio waves seldom have a lifetime exceeding .1 second. No rubbish or contamination remains to show where you have been and earth is no worse off for it."

Northrop Radio Club, Hawthorne, has acquired and installed an interesting array of equipment for use by its members, the major units built by The Hallicrafters Co., a Northrop subsidiary. The club welcomes new members and offers code classes for beginners. It meets the first Monday of each month at NRC Clubhouse, Hawthorne, and holds a work session the following Saturday.

Northrop Page to Survey Florida Police Network

Northrop Page Communications Engineers, Inc. has received a contract from the Florida Inter-Agency Law Enforcement Planning Council to survey law enforcement radio communications for the Florida counties of Palm Beach, Broward, Monroe and Dade.

Page will analyze present communications operating procedures and capabilities, project future communications requirements

and recommend phases for upgrading all communication capabilities.

Northrop Page is also involved in planning, designing and constructing of a statewide Police Communications System and a companion Police Information System for the state of Pennsylvania, plus similar work for the city of Cleveland, Ohio, and the County of Allegheny, Pennsylvania.

NORTHROP NEWS

Vol. 28

No. 10

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 Editor—Electro-Mechanical Division Ivy Edmonds
 Editor—Ventura Division Peter Toll
 Editor—Business Affairs Rosemary Hussey

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 3901 West Broadway, Hawthorne, California 90250
 Telephone: (213) 675-4611, ext. 4273

Personals

I wish to thank all my many friends at Northrop Corporate Labs for their generosity, wonderful gift & for my retirement party. FRANK McMILLEN. L

My family & I wish to express our heartfelt thanks to our friends at Northrop who were so kind to us at the passing of my wife & mother, Ester LeDoux. PAUL LE DOUX & FAMILY. L

My family & I wish to express to our friends our deep appreciation for the kind expressions of sympathy during the recent illness & death of my mother. ROBERT W. MEFFAN. L

My daughter & I gratefully acknowledge & thank our many friends at Northrop for the kind expressions of sympathy & donations to the many worthy charities in memory of my dear Bill. HAZEL ROBUSCH & PATRICIA AL-CORN & FAMILY. L

I wish to thank everyone for the gifts, cards & combination birthday & retirement parties. It was wonderful & it is a good feeling to know that I have so many friends at Northrop Aircraft. KATHY MALONE. L

I wish to sincerely thank all my friends for the cards, flowers & calls received during my illness. BETTY McCLELLAN. L

For Sale or Trade

Enlarger, Omega D2 w/Omegalite, color head, 3" Raptor lens, other access., \$150 or trade for certain Nikon F components. 213-833-3788. M

GTO, 1967 Pontiac, fiberglass tires, newly tuned & parts, \$1,500 or trade for small sports car. 213-372-8171. M

Motorcycle, 1965 Honda, new tires & chain, recent eng. o/haul, \$100 or trade for revolver, S & W 357 mag. 213-644-4165. M

Firebird 350, 1968 p/s, auto, p/b, r/h, \$2,300 or trade for 1968 pickup camper. 213-675-5350. M

Display Cases, collector's, some illuminated, from \$3 or trade for good quality .22 target rifle or shotgun. Box 1005. M

Rides and Riders

Rides Wanted

7 a.m. — 3:42 p.m.

Southern Ave. near Santa Fe, South Gate. Vera Heffernan, Aircraft ext. 2581, 213-564-1988.

8 a.m. — 4:42 p.m.

Painter Ave.-Whittier Blvd.-Colima Rd., Whittier. C. Rosenkranz, Aircraft ext. 1020, 213-696-3467.

Rides Offered

8 a.m. — 4:42 p.m.

Painter Ave.-Whittier Blvd.-Colima Rd., Whittier. C. Rosenkranz, Aircraft ext. 1020, 213-696-3467.

Women Play Vital Role in Landing System Production

Women are the mainstay of landing system production at Ventura, according to Ted Szostek, Parabol foreman.

Some 10 million stitches go into each eight-chute Apollo Earth Landing System.

From a onetime high of 80 people, Parabol personnel now number close to 15 as the Apollo Earth Landing System production goes through its final phases.

Many of the women still remaining have worked on all U.S. space landing systems—Mercury,

Gemini and Apollo. The veteran of them all, and still on the production line, is sewing machine operator Maydeen Garrison.

Mrs. Garrison joined Northrop's Ventura Division, then Radioplane in Van Nuys, May 8, 1957 as a seamstress on the Mercury system and has been sewing parachutes for America's astronauts ever since.

Very proud of her contribution to the space program, Mrs. Garrison earned a special privilege when her name was drawn and

she had lunch with visiting Astronaut Richard Gordon. He subsequently piloted the command module on the Apollo 12 moon mission.

Another longtimer is Dolores Caldera. She transferred from Ventura's El Paso, Texas facility. "We used to do production in El Paso while the research, development and prototype work took place in California," she remembers.

Miss Caldera went to work in El Paso in 1957 and transferred

to Ventura with Mr. Szostek in July of 1964. He was head of El Paso production before coming to Ventura.

Others who have worked on all three landing systems include Maxine Kreutzer, Bonnie Olson, Opal Johnson and Lena Conti. Also, the only female NASA-certified master parachute rigger in the U.S. is Norma Cretal.

As proud as Mr. Szostek is of his workers, they are equally proud of their contribution to Apollo.

Proud is the Word

Mrs. Kreutzer describes her job as "most interesting. It's easy to get real close to your work, especially when we were doing the R&D." Mrs. Olson, who is a grandmother of 12, says she is "touched and moved" by her work.

Special trips have come in with their work, too. Mrs. Kreutzer and Mrs. Johnson, for example, went to El Centro for work on the experimental Parawing program. Mrs. Johnson, who is leadwoman, feels proud she had a part in Apollo and gets "great satisfaction" in her work.

Mrs. Cretal has packed the 63-foot main chutes for Mercury, the 84-foot chutes of Gemini and the triple 83.5-foot Apollo main chutes. She is also very proud of her work.

Mrs. Conti is a grandmother like Mrs. Olson and Mrs. Johnson. With Northrop since 1963, she says it is "a challenge to be able to accomplish the job properly and meet the responsibility."

Sharing their pride is Mr. Szostek, his assistant Santiago

(Jimmy) Colunga and Mr. Szostek's predecessor, Flo Johnson. Mrs. Johnson, former Parabol supervisor at Radioplane, is now a Ventura production planner.

Although other women are involved in Apollo Landing System production, the mainstay of the Parabol are these seven women. "They're reliable, responsible and a pleasure to work with," says Mr. Szostek.

Softballers Hope To Improve As '70 Season Opens

Ventura Division softballers "hope to start better this year than we did last year," according to one of its co-managers. Last year the team lost its first 10 games.

Softball play in the Conejo Recreation and Park District-sponsored league begins June 1 at Thousand Oaks and Newbury Park High Schools. At least 13 Venturans will be playing for the Northrop club.

Co-managers this year are Ralph Reeves and Claude Vincelette of the Northrop Data Processing facility in the Ventura Division. So far they have assembled 11 players and there is room for three more on the roster.

Scheduled to play are Lou Gabriel, Pat Cloward, Dan Clelland, Ken Conger, Gene Linhart, Dave Coe, Dean Wolf, Tom Leichtfus, Ed Ray, W. H. Higginbotham, Cliff Jarvis, Mr. Reeves and Mr. Vincelette.

"We have some new faces and we'd be happy to see some more," Mr. Vincelette told the Northrop News.

Games are played twice weekly during the evenings at either Thousand Oaks or Newbury Park High fields. "Spectators are welcome and its free," Mr. Vincelette added.

Potential participants may call either him or Mr. Reeves at ext. 409 for further information. Play will end in late August.



BUSY AT WORK ON APOLLO PARACHUTE SYSTEMS

Parabol veteran Maydeen Garrison stands at right with Foreman Jimmy Colunga in photo by Jim Woods.

SCHOLAR—Recipient Has Many Interests

(Continued from page 1)

American Field Service chapter, parliamentarian for student government and participation in a Youth Leadership Program sponsored by the Conejo Optimist Club.

Young Massey is the oldest of three Massey children. A brother, Benjamin, is 13, and a sister, Shawn, is 9. His mother, Rachael, is a former technical illustrator at Ventura.

The National Merit Scholarship may be from \$250 to \$1,500, depending upon need. Northrop will provide the funds and details are handled by the National Merit Corporation, a non-profit agency.

JA Liquidates, Reports Earning Rate of 5 Per Cent

The 1969-70 version of the Northrop - counseled Junior Achievement company CONICO was profitable, "not so much in terms of capital gain, but in experience and understanding gained by working cooperatively with all members."

That's the keynote of the CONICO president's message to stockholders at the annual meeting which saw the company liquidated and pay a 5 per cent dividend on each \$1 share of stock.

"Knowledge and experience are by far more valuable than money," Richard A. (Rick) Raio told the group. Young Raio recapped the year as successful in production and sales of holiday candles and memo pads.

Other reports on the record year with more than 40 participating members were offered by Jeff Brambir, Rick Smith and Scott Davis, vice presidents of Manufacturing; Vicki Rice, vice president of Sales; and Kerry Gee, treasurer.

Miss Gee's report outlined the capitalization with 134 shares at \$1 each, total income from products at \$778.36 and total expenditures of \$769.38 for a net profit of \$8.98 or approximately 5 cents per share.

The books were audited by Venturans Chuck Taylor and Elodie Lorentson for certification on behalf of the Conejo Valley Area Chapter of the National Assn. of Accountants.

Other Venturans participating included Doug Finch and Carol Thomas. David Magedman, of RCA was business advisor.

Mr. Finch received a special honor from Welko E. Gasich, Ventura general manager, in the form of a nine-year service pin. This is the ninth year the division has sponsored a junior company and Mr. Finch's ninth year of assistance.

CMIP—Success After Hard Work

(Continued from page 1)

well. It costs just 7 cents per item," Mr. McCormick added.

Mr. Sparks stressed that "without the cooperation of the men in the shop, who helped very much, none of these savings would have been achieved. The success of this cost savings drive is a credit to the whole shop."

HL-10

(Continued from page 1)

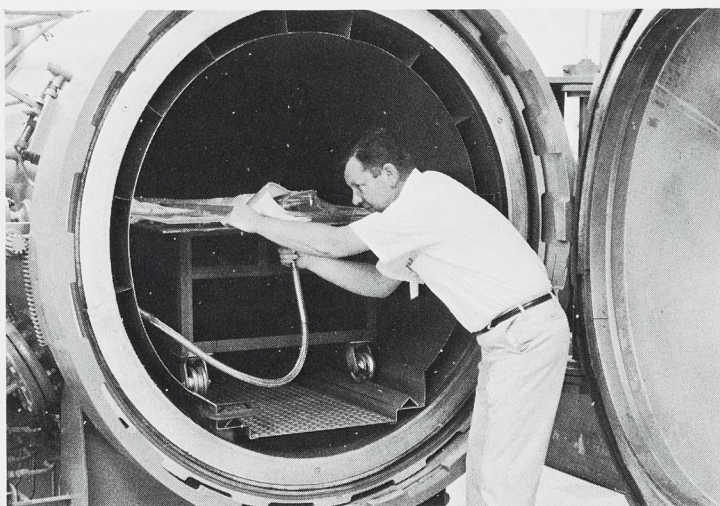
The large rocket engine in the HL-10, which has already propelled the experimental craft to a maximum speed and altitude of 1,227 miles per hour and 90,303 feet to study the flight characteristics at transonic and supersonic speeds, has been replaced with three 500-pound thrust rocket engines. These engines will be used during the final landing approach and landing maneuver.

McEWAN GRADUATES

Tony McEwan, Ventura, recently earned his master's degree in aerospace engineering from the University of Southern California. He did his undergraduate work at Princeton University where he received a BSE degree.

**IS IT NEWS?
CALL EXT. 1425
VENTURA**

On The Job...



JOHN KAVANAGH hooks up vacuum hose in small autoclave before testing in his job as Quality Control technician. Mr. Kavanagh has been with the Ventura Division and Northrop nearly two years.



HONORED FOR NINE JA YEARS
Doug Finch receives special pin from Welko Gasich.

NORTHROP NEWS

VENTURA DIVISION EDITION

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Vol. 28, No. 11

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A FIRSTHAND LOOK AT ROCKET DRONE ENGINES

M. A. Maurer points out MQM-74A assembly line features to visiting Italian military officials.

Italian Military Officials Visit Ventura, Inspect Aerial Drones

The list of international visitors to the Ventura Division received an important addition recently as a high-ranking delegation of Italian Armed Forces officers toured the facilities.

One-day visitors were Vice Admiral E. Zanni, chairman of the Technical and Scientific Council of Defense; Major General G. Bertolaso, commander, Sardinia Missile Range; Air Force Major General G. B. DeAngelis; and Rear Admiral H. Masetti, Navy chief of surface-to-air missiles.

Also, Brig. General G. Ciarlini, Air Force deputy chief of Logistics; Brig. General L. Fortunato, Army chief of Logistics; Col. G. Pandolfini, Admiral Zanni's executive secretary; and Commander G. Borsari, Navy chief missile officer.

Like high-ranking Greek and British visitors who have preceded them in recent months, the Italians were evaluating the Northrop aerial target drones.

They were particularly interested in the Chukar (U.S. Navy MQM-74A) for possible use on the Sardinian Island range of Salta di Quarria.

Assisting in technical presentation and assembly line tour were

Dr. Furio Lauri and Peter Burton.

Dr. Lauri is president of Meteor S.p.A. Italy, a co-producer of NVMI target drone, and Mr. Burton is general manager of

INTAIR, Brussels, Belgium, which through a partly owned subsidiary, Aerial Targets Ltd., represents the Ventura Division as sales representative in England, France, Belgium and Italy.

SERVICE PIN RECIPIENTS LED BY WARREN CLYMER'S 20 YEARS

Twenty years ago Warren Clymer decided that Radioplane would be a good place to work. He's been with that company, and its successor, Northrop's Ventura Division, ever since.

Mr. Clymer received a 20-year pin this week to lead the June service pin recipients. He is head of Records Retention and coordinates the Suggestion Awards Program.



Mr. Clymer

Qualifying for 15-year pins this month are Merna Childs of Packaging and Shipping, Albert Pearson of the Electronics Laboratory, and John Thompson of Field Engineering and Training.

The two five-year pin recipients

are Suzanne Bartley and Herman von Guerard. There were no 10-year pins this month.

MANAGEMENT CLUB WILL HOST LADIES

Members of the Ventura Division Management Club will host their wives at a special Ladies Night meeting at the Rustic St. Raymond's Dominican Retreat in Hidden Valley near Newbury Park.

The June 20 meeting will feature a social hour beginning at 6 p.m. and a buffet dinner under the oaks at 7:30 p.m. Casual dress will be in order and dancing will top off the evening.

Cost will be \$3 per couple for members and \$3 per person for guests. Reservations should be completed this week.

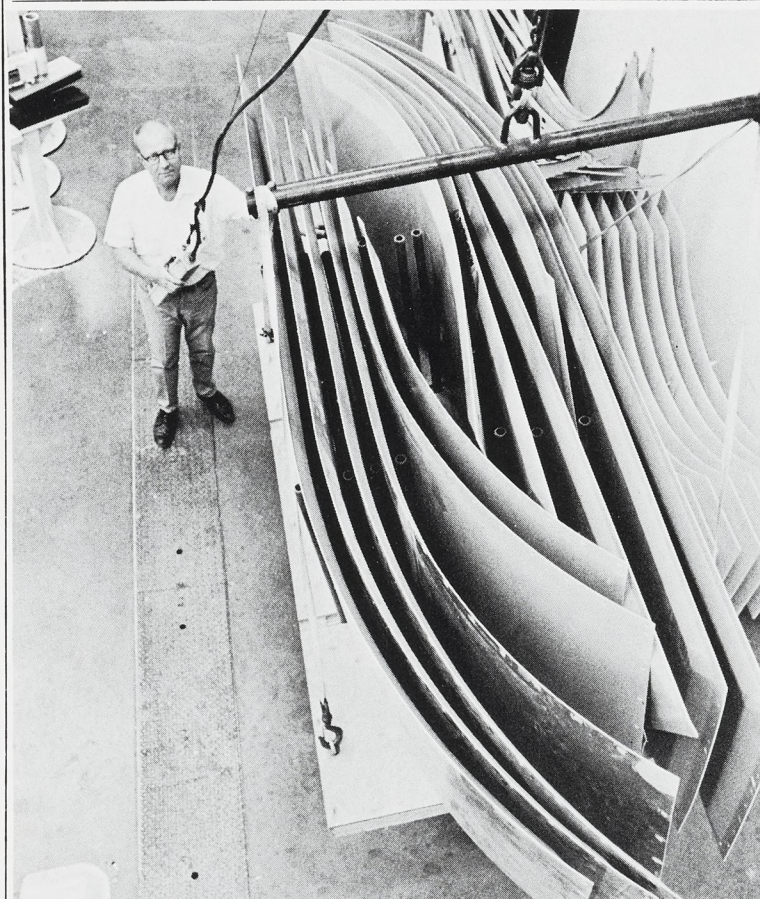
Ventura Participation In Bonds Program Hits High of 98.6 Per Cent

Participation by Ventura Division personnel in the recently concluded U.S. Savings Bonds program has hit a record 98.6 per cent, according to Ventura program coordinator Tom Tapper.

With final reports still coming in from throughout the corporation at presstime, it appeared, unofficially, that Ventura led all other Northrop divisions in percentage of increase and new levels of participation. Full details will be listed in the June 24 edition of the Northrop News.

"The response of Ventura personnel to the bond program has been very gratifying to all of us involved," said Mr. Tapper. Ventura's level of participation was 85.4 per cent prior to the annual program which took place in May. Mr. Tapper praised his coordinators who aided him in the drive. "They did all the work," he said, "they should be very proud."

In a letter to the 18 Ventura Division coordinators, Division General Manager Welko E. Gasich also lauded the participants. The new level of participation "not only exceeds the company-wide goal of 85 per cent but exceeds the division goal of 90 per cent," the letter said.



OPERATING HIS INVENTION

Sam Trinkle lifts 14 wing fairing pieces to jig via special rack.

EARNS \$158

Rack Saves Many Steps

If you have to take a number of good-sized items up a flight of stairs, why not build a rack to carry several at once instead of hauling them up one at a time?

That's precisely what M. S. (Sam) Trinkle of Boeing 747 Final Assembly, did. The items were 747 wing fairing panels and the steps were those leading from the main assembly floor to the top of the master jig.

For coming up with such an idea Mr. Trinkle earned a cash award of \$158 in the Ventura Division's Suggestion Awards Program. The plywood panel rack is hydraulically operated and carries up to 14 pieces at once.

Another major recipient, this time for \$133, was William J. (Bill) Ashley of Material Control. Production Operations uses lots

of rags, Mr. Ashley discovered, and the cost and quality did not balance with the longevity.

"While the cotton knit rags were less expensive than cheesecloth, I found that the cotton rags lasted five times as long. When balanced with the cost the end result was a big savings," Mr. Ashley said.

Still another three-figure recipient was John Kavanagh of the Quality Control Laboratory. He was awarded \$117 for recommending a time and money-saving calibration part.

J. L. Payton of the Air Condition subunit received \$78 for an idea to conserve water, Marvin Shered was a \$27 recipient, Adele Grunau received \$24 and Morrie Schechter got \$21 for his cost-

(See SUGGESTERS, page 6)



CHECKING 747 PRODUCTION OPERATIONS, TOO

Italians saw Ventura's plastic lay-up operations for the Boeing 747 wing fairings as well.

Checking Out Display



JOE C. JONES, deputy assistant secretary of the Air Force for Research and Development, left, looks over an F-5 component fabricated of advanced composites at the Air Force Materials Symposium—1970 held recently in Miami Beach. Looking on is Floyd Damman, senior Customer Requirement specialist at the Aircraft Division. Northrop's R. D. Hayes also took part in the largest event of its type ever held.

Boeing 747 Passengers Top Half-Million Mark

More than half-a-million passengers have been carried aboard Boeing 747 superjets since the wide-bodied jetliners went into service Jan. 21, according to The Boeing Company.

In this period, 747's have logged about 10,000 hours of revenue flying. They have flown approximately five million miles, producing about 1.250 billion passenger-miles. (A passenger-mile is one of the standard measurements of air transport productivity. Each is generated by carrying one passenger one mile.)

Of the 192 superjets on order by 29 leading world airlines, 43 have been delivered to 10 airlines. Four of these airlines operate them on trans-continental, trans-Atlantic and trans-Pacific routes with more than 265 departures scheduled each week.

At The Boeing Company peak, production rates have been reached with one 747 rolling off the assembly line every three working days, or seven each month.

Northrop has been moving at

this rate for several months, turning out sufficient components to comprise one 747 fuselage each three working days. Currently, Northrop is approaching the production of its 100th set of 747 components.

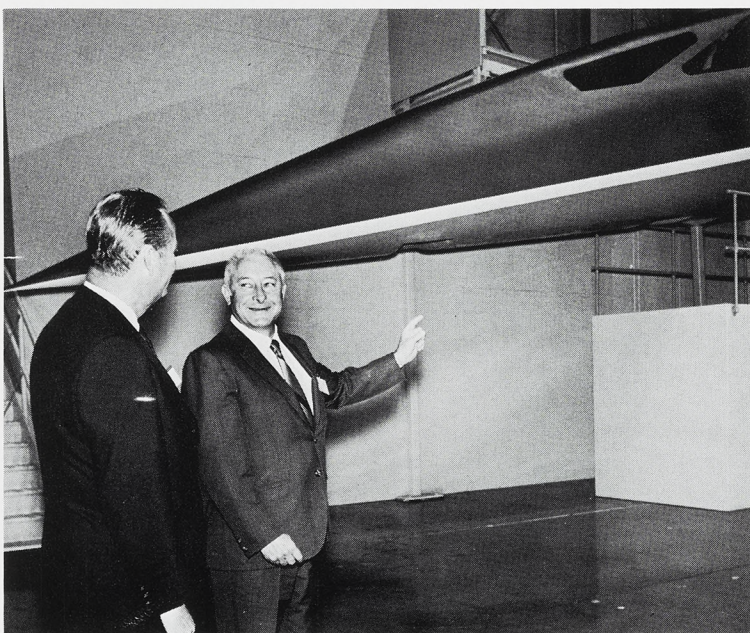
With completion of the 100th shipset, Northrop will have delivered sufficient amounts of skin panels to blanket an area covering 22 acres, plus sufficient floor panels to cover six acres. By comparison, a football field contains about three-fourths of an acre.

In addition, these components contain well over 200 miles of structural stringers and more than 750,000 stringer clips.

The Boeing Company plans to deliver 95 superjets during 1970.

Airlines now flying the 747 in commercial service include Pan American, Trans World, American and Lufthansa. Other airlines which have received 747's and are preparing to place them in service are Air France, British Overseas Airways, Japan Air Lines, Northwest, Alitalia and Continental.

SST Full Scale Mockup Unveiled



UNVEILING CEREMONIES for the full scale mockup of the U.S. supersonic transport were held last Friday at The Boeing Company. F. W. Lloyd, left, Northrop vice president and Aircraft Division general manager, and Paul Jacobs, Aircraft Division vice president, stand before drooped SST nose. Lowell Yancey, the Aircraft Division's SST program manager, was also on hand. The Honorable John A. Volpe, secretary of Transportation, spoke at the unveiling.

Thiem Industries—Northrop's Nominee—Wins Award of Year

Thiem Industries, Inc. of Torrance, a major Northrop Corporation subcontractor, has won the government's coveted Small Business Subcontracting Award of the Year.

Northrop nominated Thiem for the honor.

Thiem won the honor in nationwide competition involving more than 150 nominees submitted by major prime contractors. Thiem was rated first among nominees of the west coast and later competed against entries in nine other SBA regions for the national honor.

Henry J. Thiem, founder and president of the firm, accepted the award at the Small Business Administration's annual subcontractor conference and workshop last month in Washington, D.C.

Hilary Sandoval, Jr., SBA administrator, said that Thiem won the nationwide competition for its "superior performance in subcontracting."

Evaluators

Northrop's Max Pellerin, Small Business administrator for the Aircraft Division, and Bill Boyes, Aircraft Division purchasing agent, evaluated Thiem's performance and prepared the nomination.

Thiem has been a major Northrop subcontractor for more than four years, Mr. Boyes reports. It performs a majority of the Aircraft Division's spot welding requirements, does some assembly work and handles machine overloads as required through competitive price contracts. The firm has contributed to Northrop work on the F-5/T-38 program as well as the 747 jetliner program and smaller in-house efforts of various types.

"Thiem was one of the first firms to win the Northrop Key Award for quality subcontract performance," Mr. Boyes said. "Thiem consistently rates 'superior' in every aspect—price, quality and craftsmanship—in work it performs for Northrop."

Thiem Industries, Inc. was founded by Henry J. Thiem in March 1955 and incorporated in December 1955. The business was organized for the manufacture of precision metal assemblies and operations were begun in a small, leased building in Gardena with five employees. In the first 12 months of business, Thiem In-

dustries had sales of less than \$75,000. Today, 15 years after its modest beginning, the company employs nearly 200 people and has sales of \$5 million per year.

Thiem Industries has enjoyed a steady growth over the years as a result of industrious and conservative management, a team of talented and dedicated employees and customers who have been loyal to a firm that has supplied them with quality products on a timely basis.

This company has been recognized and honored on numerous occasions in the past by its customers for its voluntary contribution to Equal Opportunity Employment Program and for its

quality and performance. Special efforts were made to hire the handicapped and minority groups. The results of these special efforts are evident where minority group employees and handicapped can be observed performing not just menial tasks but jobs at all levels, including supervisory positions.

Among the outstanding honors bestowed upon the company was the nomination by the Aircraft Division for the 1967 Small Business Subcontractor of the Year Award and the nomination by the Fullerton Division of the Hughes Aircraft Co. in 1968. Northrop's nomination in 1969 led to receipt of the top National honor.



SMALL BUSINESS SUBCONTRACTOR OF YEAR
Henry Thiem holds plaque with his wife, Anna, and daughter, Ellen, at hand. At left is Hilary Sandoval, administrator, Small Business Administration and at right, Marshall J. Parker, associate administrator. Looking on is Northrop's M. G. Pellerin.

Retiree's Reunion



ANNUAL GATHERING of Northrop Retirement Club drew 125 to the Alondra Club last month. At top are from left, John McCoy, Aircraft Division vice president and principal speaker, Dave Cocks, the master of ceremonies and George Vaughn, president. Below are some of those on hand.



FISHING MEET

The NRC Surf Fishing Club will hold its next meet at Torrance Beach from 6 a.m. to 12 noon on June 20, according to Club Commissioner John Pawlicki.

"The location is Esplanade Street and Vista Del Mar," Mr. Pawlicki said. "Members may register at Red's Bait Shop, Highway 101 at Pacific, Redondo Beach, for special prizes and for the NRC monthly awards."

CIRCUS TICKETS

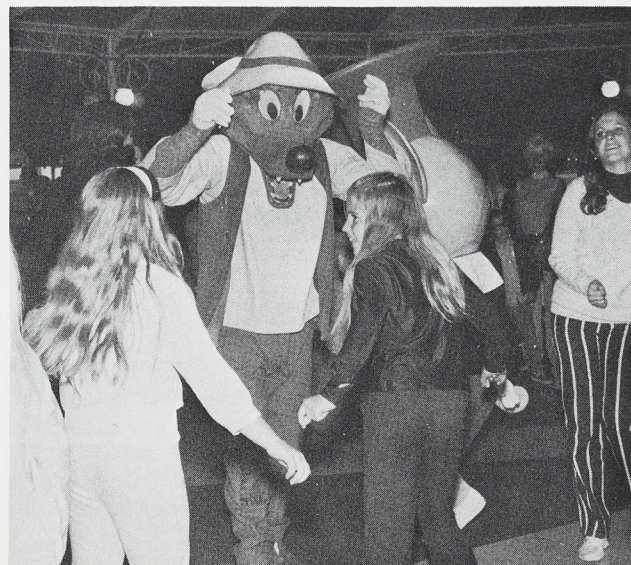
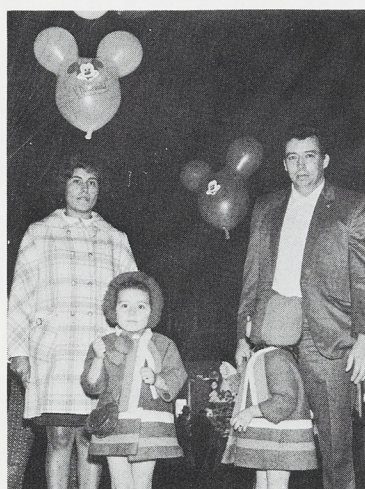
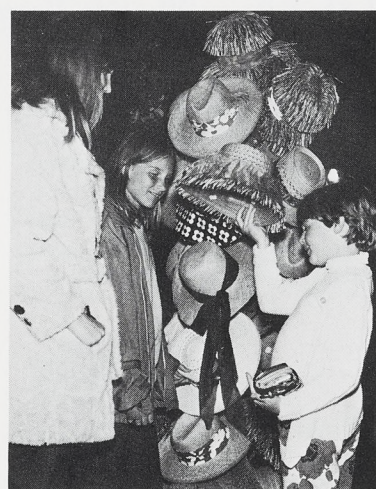
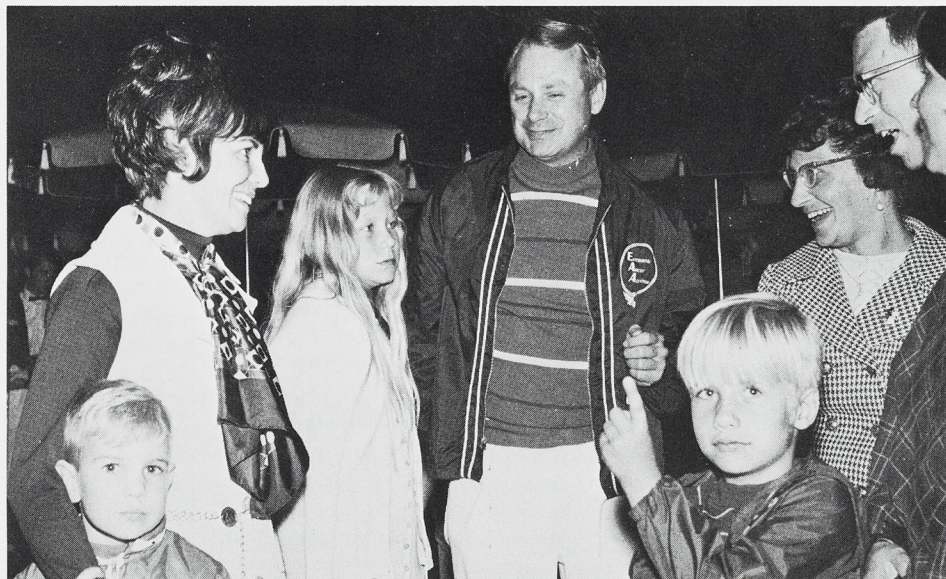
Tickets are now available at all Northrop ticket outlets for a special NRC-sponsored circus party to be held at 6 p.m. Aug. 2 at The Forum, Inglewood.

NRC has booked 500 seats for a performance of the famed Ringling Brothers and Barnum and Bailey Circus. Regular \$5 tickets will be available to Northrop employees for only \$3.



Northrop Night At Disneyland Thrills 16,373

(Photos by Ron McGaffin)





BERIAULT'S ONE-AIRPLANE GARAGE
His "creation" will cost about \$1,000; fly from dry lake bed.

Northrop Son Decorated For Life-Saving Action

Hospitalman Albert W. Toy, Electro-Mechanical Division employee now on military leave, has received the Bronze Star for administering first aid to wounded U.S. Marines while under battlefield fire in Vietnam.

Mr. Toy is the son of Wes Toy, manager, Test Operations for Automation Systems, was employed in Ordnance Fabrication before leaving to join the U.S. Navy in 1966.

The official citation accompanying the award said that Hospitalman Toy was serving as a medical corpsman with the Third Marine Division when his company was attacked by a numerically superior force of North Vietnamese armed with satchel charges, automatic weapons and rocket-propelled grenades.

"Disregarding his own safety,"

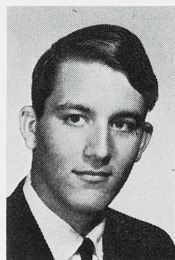
the citation said, "Hospitalman Toy worked his way across the fire-swept terrain to the side of a wounded Marine and skillfully administered first aid."

The citation went on to say that Hospitalman Toy repeatedly exposed himself to intense enemy gunfire as he moved from one position to another to give medical assistance to the wounded. Later he assisted the squad leader in adjusting his defenses and encouraged his comrades.

Other Decorations

The award carries the Combat Distinguishing V for Valor device.

In addition to the Bronze Star, Hospitalman Toy was previously awarded the Purple Heart Medal for wounds he received in action and the Vietnamese Cross of Gallantry for outstanding service in Vietnam. He participated in nine major campaigns during his Far East tour, and recently returned to duty at the U.S. Navy Amphibious Base at Coronado, Calif.



Mr. Toy

WITH A 'BUG' ENGINE Beriault Is Building His Own Airplane

Paul Beriault's one-car garage is now almost a one-airplane garage. For the past two months it has been his workshop for building his own airplane which will be powered by a Volkswagen engine.

Mr. Beriault, a licensed pilot, reports that friends were startled when he announced he would fly with a "bug" engine, but he insists that the VW engine can power a plane.

"I am building the plane from professional plans. A prototype aircraft cruises at 85 to 90 miles per hour and has been flown to a ceiling of 11,000 feet," he reports.

Mr. Beriault first learned to fly in 1948, doing odd jobs around an airport to pay for his lessons. Although he has continued to fly since that time, this is his first attempt to build a plane of his own.

"I studied the plan for two months before I started," he said. "Then I assembled the material."

SULLIVAN, SHEHAN AT CAPITOL FETE

Pat Sullivan of Northrop Corporation's Washington, D.C., office has taken part in the Top-Side Aviation Club's annual Bosses' Night event.

Honored guests for this event, held at the Statler Hilton Hotel, were the Honorable John H. Chafee, secretary of the Navy, and Vice Admiral Thomas F. Connolly, deputy chief of Naval Operations (Air).

The club is comprised of women holding top-level positions in all major aviation and aerospace companies and related government organizations in the Washington area.

Miss Sullivan, Northrop's "senior" employee in terms of years served in the Washington office, took as her guest Mason Shehan, director of Northrop's Navy Corporate group.

Although the cost was only about \$1,000, there is no cheap stuff in it. I got the best because I'll be the one flying it and it is my neck sticking out."

He is doing the work alone, finishing all parts with hand tools. However, FAA inspectors periodically check his work because the FAA must certify the flight worthiness of the plane before he will be able to fly it.

When finished, the "bug" plane

will only be flown in the desert, operating from dry lake beds. "I am not adding brakes and other equipment necessary to qualify for take off and landings at airports," he said. "Brakes aren't necessary on the lake beds. The tailskid dragging on the dirt brakes your plane as fast as necessary."

Mr. Beriault is a senior power operator at the Aircraft Division's Torrance facility.

Jud Morris' Book Offers Tips on Listening Skills

Jud Morris' book on "The Art of Listening" was found to be "very informative and entertaining" by a reviewer in the May issue of the Training and Development Journal.

"(This) book contains many worthwhile and practical suggestions for the improvement of one's listening," the reviewer said. "If it is read, studied, and used to change one's listening habits it may well have a lasting and highly beneficial effect."



Mr. Morris

Mr. Morris is a member of the Electronics Division Personnel Planning and Development group. His book was published by the Boston Industrial Education Institute.

The major portion of the book centers around what Mr. Morris calls the 10 "non-building" blocks to good listening.

The following is a list of those "non-building" blocks, published for the benefit of Northrop employees interested in improving their listening ability:

- Forming a judgment or evaluation of the speaker before understanding what he is really

saying.

- Making unjustified inferences about the meaning of what is being said.

- Attributing our own thoughts and ideas to the speaker thus distorting the message we receive.

- Being inattentive.

- Having a closed mind, thereby foreclosing any possibility of understanding other people's viewpoints.

- Hearing that which we wish to hear rather than what is actually being said.

- Assigning a meaning to words used that was not intended by the speaker.

- Excessive and incessant talking.

- A lack of humility which forecloses getting new ideas from a speaker.

- Fear of being in some way changed by what we are listening to.

Employees Help Charity Group Set New Record

AID-United Givers collected and distributed a record \$15,929,793 to Southern California health and welfare causes during its last fiscal year which ended April 30. This was \$408,479 above the previous year's disbursements.

Northrop employees at three divisions — Aircraft, Electronics and Electro-Mechanical—plus the Corporate office and Northrop Corporate Laboratories, support AID-United Givers through payroll deductions. A portion of all funds raised goes to assist needy Northrop families through Northrop's own NORaid program.

Northrop pledges to AID-United Givers are made on a fiscal year basis that coincides with Northrop's fiscal year which ends July 31.

For the last full Northrop fiscal year, employees gave \$367,491 to AID-United Givers and NORaid.

AID-United Givers continues to be the largest single source of revenue supporting Southland health and welfare causes. Since its inception in 1951, this organization has collected and disbursed \$171 million for this purpose.

Northrop employees became an AID-United Givers chapter in 1955 and since that date have contributed \$3,800,000.

RACE DATE

One ticket, selling for \$6.25, covers it all—admission to the clubhouse, a buffet luncheon and a seat in a section reserved just for Northrop families.

The occasion is NRC's annual "Day at the Races" set for June 27 at Hollywood Park.

WE ASKED THEM—What Is Your Pet Peeve?



Paul Duron, jig and fixture builder, Aircraft:

Anything that prevents my going to Yucca Valley each weekend. My wife and I have worked six years to build a nice home there. We have 150 shade trees that require water each week. So I go every weekend and spend my vacations there.



Jan Bosse, secretary, Aircraft:

Drivers who take advantage of Volkswagen drivers like me. Some people delight in cutting me off or squeezing me out on the streets and freeways. Pickup drivers are worse than all the rest and really make my blood boil.



Lillian Allen, secretary, Ventura:

Grouchy people; they bug me more than anything. I enjoy people and life. It doesn't cost a cent to smile. Happy people make others happy, too.

Rodger Sorenson, electronics engineer, Ventura:

I'm not sure I can answer that one—there are so many. Different things annoy me at different times—on the freeway it's the traffic, in my yard it's the lawn moths. I'll have to say my major one, though, is that I can't stay skinny or even hold my weight. No matter what I do I gain weight.



John Williamson, senior designer, Electronics:

People that ask for more from life than they want to give. Too many people talk about problems and then they just sit back and wait for someone else to solve them.



Bob Smith, senior engineer, Electronics:

I don't really have a pet peeve, as such. But the one thing that does bother me is that we don't usually get smart enough to understand things as they are until we are too old to do anything about it.



Millie Guolo, secretary, Electro-Mechanical:

Many of my pet peeves are "no-no's." However, one which I refuse to buy is the "inbuilt demarcation zone" hangup on both sides of the "generation gap." Since Day One there has been an extreme difference in thinking and actions of young and old. I can only agree with Voltaire, when he says, "The young are fortunate; they will see fine things."



Mildred Williams, secretary, Electro-Mechanical:

I don't have one unless it is impatience with people who do have pet peeves.

Classified

Classified ad service is provided free of charge to all Northrop personnel. Ads for agencies, commercial enterprises and private businesses are not accepted. The Northrop News reserves the right to edit or omit ads. Obtain ad form C67 from organization clerk and mail ad to Northrop News, 170, zone 62. Ads are limited to one item and one ad per person each issue. Deadline is noon Wednesday, one week before publication.

Automobiles For Sale

Chevrolet, 1960 2-dr., p/s, p/b, 283 V-8, auto., \$275. 213-372-6740. A

Chevrolet, 1957, 650 h.p., 368 cu. in., 4-spd., stereo, raised 22", \$1,500. 213-644-2640. A

GTO, 1966, rbit. eng., new tires, Hurst linkage, \$895. 213-676-7109. A

Mustang, 1968 h/top, 6-cyl. stick, r/h, \$1,700. 714-524-2174. A

Station Wagon, 1962 Chev. Nova II, r/h, \$450. 213-542-2353. A

Cadillac, 1964 Sedan de Ville, 4-dr., full power, a/c, \$1,100. 213-644-5165. A

Cougar, 1967, 4-spd., a/c, d/brakes, tape, \$1,575. 213-372-1386. A

Cougar, 1968, d/brakes, p/s, a/c, \$1,995. 714-524-9436. A

Austin Healey, 1961 Sprite, radio, \$675. 714-523-0414. A

Pontiac, 1963, 4-dr., sedan, racing motor & pistons, M-T valve covers, \$400. 213-379-1882. A

Truck, 1951 Ford, ¾-ton, rbit. eng., new brake sys., 4-spd., \$500. 213-828-4713 before 10 a.m. A

Jeep, military, new top, 2 sets military whls., \$850. 213-644-4165. A

Scout, 1963, big whls. & tires, o/drive, \$1,450. 213-835-0805. A

Volkswagen, 1969, auto. shift, r/h, \$1,500. 213-679-1022. A

Volkswagen Camper, 1969, flip top, 5,000 mi., extras, \$3,200. 805-947-4892. A

Station Wagon, 1964 Ford Falcon, auto. trans., p/s, 260 eng., \$850. 213-329-9484. A

Triumph, 1968 GT-6, 4-spd., radials, wire whls., \$2,200. 213-328-6984. A

Ford, 1962, 2-dr. sedan, \$300. 213-673-0538. A

Volkswagen, 1968, \$1,500. 213-675-8687. A

Plymouth, 1968 Satellite, p/s, 2-dr. h/top, min. bid \$1,095. Credit Union ext. 1117. A

Chevrolet, 1964 Impala, a/c, p/s, auto. trans., 4/8 track stereo tape w/2 spkrs., \$1,100. 213-371-3867. A

Volkswagen, 1964 Variant squareback, 47,000 mi., 66 h.p. eng., \$895. 714-892-0171. A

Volkswagen, 1968, new tires, muff. & shocks, 18,600 mi., \$1,475. 213-378-5078. A

Corvair, 1965 Monza sport cpe., auto., radio, \$450. 213-372-8019. A

Chevrolet, 1963 Impala, 4-dr., \$500. 213-378-1488. A

Corvette, 1966, auto. trans., a/c, Pirelli tires, AM-FM, \$2,600. 213-542-3915. A

Volkswagen, 1970, \$1,950. 213-376-3596. A

Chevy II, 1963 Nova S.S. h/top cpe., auto. trans., p/s, r/h, \$550. 213-377-3759. A

Austin America, 1969, new trans., still under warranty, take over \$58.87 mo. pymts., \$1,395. 213-675-7410. A

Buick, 1968 Riviera, low mi., fully equipped, \$3,300. 213-324-9769. A

Corvette, 1967 Stingray, auto., air, low mi., \$2,950. 213-591-3058. A

Dodge, 1969 Polara, 7,000 mi., fully equipped, \$3,600. 213-327-1975. A

Corvair, 1962 4-spd., r/h, \$225. 213-399-4168. A

Chevelle, 1968 S.S. 396, p/s, a/c, 4-spd., posit., \$2,200. 213-757-6774. A

Porsche, 1963 1600/S, new int., trim, batt., tires, carbs. rebilt., \$2,000. 213-273-4600, apt. 16F West. A

Household Items For Sale

Refrigerator, Coldspot, self-defrosting, \$50. 213-876-7902. B

Floor Lamp, \$12. 213-541-1423. B

Washer, G.E. & dryer, Hotpoint elec., 110-220, \$100. 213-329-4451. B

Washer, auto., 3 water temp., lint-filter, 3-cy., 2 spds., \$35. 213-324-5449. B

Hospital Bed, manual control, trapeze, side rails, mattress, \$125. 714-776-2709. B

Bar, Early American, maple, o/head canopy, 5'10" ht., 6' long, 3 drwrs. inside cabinet, added features, \$150, w/matching stools, \$180. 213-379-6460. B

Dishwasher, G.E. portable, convt. w/cutting board, used 8 wks., \$160. 213-377-4604. B

Freezer, upright Frigidaire, about 15 cu. ft., \$75. 213-375-6467. B

Stove, apt. size, copper, \$25. 213-835-6492. B

Stove, Western Holly, top grill, broiler oven, \$35. 213-676-3589. B

Stove, 4-burner, 2½ yrs. old, \$75. 213-674-4563. B

Dinette Set, wrought iron, nev-a-mar top, extra leaf, \$20. 714-838-6171. B

Chest-of-Drawers, white, 4-dwr., \$20. 213-371-4233. B

Miscellaneous For Sale

Top Carrier, fully enc., all-weather, 24 cu. ft., 14" h. x 48" w. x 72" l., \$25. 213-676-0938. C

Sailboat, Shark 24 fiberglass sloop, trailer, boat bath, extras, \$4,200. 805-498-4826. C

Amplifier, Fender, Vibro-Champ-amp, \$40. 213-371-4216. C

Camera Body, Nikon F, chrome, w/T finder, A screen, \$125. 213-675-3892 until 3 p.m. C

Editor, Craig, regular 8mm, \$35. 213-377-6658. C

Saxophone, alto, Majestic, \$150. 213-378-6405. C

Planer, Stanley, for cabinetmaking, manual w/blades incl., \$30. 714-826-2007. C

House, 3-bdrm., stucco, near Northrop, lge. fenced yd., dble. gar., cpt., \$25,000. 213-532-7287. C

House, Hollywood Riviera, 3-bdrm., 2 baths, 100 yards beach & P.V., \$41,500. 213-378-5494. C

Surfboard, 7'7" David Nuuhiwa roundtail, \$50. 213-632-2642. C

Engine, 409 Chev., rebilt. to 427, \$200. 213-599-2254. C

Carbine, Ruger 44 mag, w/sling, \$75. 213-532-7175. C

Crash Helmet, lge., \$12. 213-327-8927. C

Tent, poles, attach to VW bus, \$95. 213-376-4831. C

Wheels, 5 - 8½ wide rims & tires, fit Jeep, Scout, Bronco, \$225. 714-493-4173. C

Lot, ½ acre bldg. site on Foothill Dr., Agoura, horses o.k., city water, elec. & phone, \$8,500. 213-783-8271. C

Table Lighters, Bronica butane gas, gold or silver, \$13 ea. 213-674-8088. C

Rearend, 1955-'56 Olds, & complete 3rd sec. incl. drive shaft, set up for '55-'57 Chev., \$30. 213-323-6786. C

Outboard Motor, 4-cy. Lauson, used very little, \$75. 213-671-2776. C

Radio, Hi-Fi Craftsman, cabinet w/turntable, record storage & 1 cabinet w/spkr., \$50. 213-675-2514. C

Coins, solid bronze collector's set Franklin Mint Presidential, \$20. 213-674-6076. C

Bicycle, boy's 24" Schwinn, \$10. 213-676-0666. C

Saxophone, alto, Gretsch-Commander, case, \$65. 213-377-8508. C

Piano, upright, recently refinished in pecan, tuned, \$235. 213-696-7529. C

Home, ¾-acre, 2-bdrm., all elec., insulated, 20x20 gar., 8x20 workshop, 12x20 screened patio, Lincoln, Calif., \$16,500. 213-379-2579. C

Shopsmith, table saw, lathe, sander, drill press, stand w/casters, \$125. 213-697-0769. C

Piano, spinet, Gulbrandsen, walnut finish, bench, \$275. 714-774-4853. C

Motorcycle Helmet, Snell approved, \$18.95. 213-372-7990. C

Golf Clubs, 4 Sam Snead woods, \$25. 714-846-1773. C

Boat, 8' fiberglass, Dink Kitten racing class, \$150. 213-675-8262. C

Lawn Edger, 2½ h.p. eng., \$25. 213-630-5562. C

Metal Locator, Goldak Commander Mod. 720, batt., headphone, spkr., \$100. 213-371-7958. C

Burglar Alarm Sys., for gar. front & back doors, \$18 or \$38-\$48 installed. 213-672-6454. C

Press, offset, remanufactured 1250, chromed cyl., chain, stacker, cloth tapes, belts, \$800. 213-752-2717. C

Lot, 60' x 180', off Palmdale Blvd., in Palmdale, \$4,500. 805-252-6521. C

Cemetery Plots, 2 in Evergreen Sec., Inglewood Pk. Cemetery, convt. to dble. interment, \$400 ea. 213-677-4256. C

Bar, portable, 2 swivel stools w/backs, white vinyl w/mar-proof top, \$45. 213-430-8378. C

House, 2-story, 5-bdrm., lge. lot, near Northrop, \$28,000. 213-676-3814. C

Lot, near river, \$4,500. 213-862-3027. C

TV, 14" Zenith, portable, \$20. 213-374-4703. C

Pups, Australian silky terrier, males, 8 wks. old, AKC reg., \$200 ea. 213-379-3313. C

Drill Motor, Craftsman, ¼", w/screwdriver attachment, \$10. 213-545-6719. C

Lot, in California City, close to school & shopping area, \$4,000. 213-377-7156. C

Surfboard, Jacobs, \$60. 213-376-6489. C

Pups, miniature Dachshund, 7 mos. old, AKC papers, \$50. 714-821-1685. C

Wet Suit, men's Dive 'N Surf full dive suit, med.-lge., \$40. 213-377-7670. C

Own-Your-Own Apt., all elec. 2-bdrm., 2 baths, patio, pool, party rm., hobby shop, enc. 2-car gar., adults, can carry papers, \$24,000. 213-327-8047. C

Typewriter, Smith-Corona Skywriter, all steel, zippered case, \$65. 213-375-9949. C

Phone Answering Device, RF 101 call control w/remote, \$250. 213-545-5100. C

Lot, ¼ acre, Lake Havasu City, Ariz., \$6,000. 213-645-5158. C

Home, corner, 2-story, 4-bdrm., 2 baths, enc., patio, lge. yard w/boat or trailer gate, f/place, cpts., dps., assume FHA or new terms, \$31,950. 714-968-5343. C

Cabin, Running Springs, view lot, appliances in, f/place, cpts., financing avail., \$19,500. 714-635-0853. C

Miscellaneous For Sale

Typewriter, Underwood, portable, \$10. 213-371-4209. C

Props, 2 brass, for 35 h.p. Mercury outbd., \$5 ea. 213-675-3254. C

Boat, 14' Sea Hunter, fiberglass runabout, convt. top, 40 h.p. Evinrude, trailer, \$750. 213-545-4038. C

Piano, upright, ivory keys, bench, \$120. 213-375-4747. C

Acreage, 5 acres, Antelope Valley, east of new airport, utils., roads, \$400 dn. or \$83 on land contract, \$8,250. 213-378-1026. C

Acreage, 10½ acre, rolling, view of new Perris Lake, low dn., \$990 acre or \$10,300. 213-377-1074. C

Mini Bike, Briggs & Stratton, 3 h.p., \$100. 714-635-1359. C

Engine, VW, 1200 cc, 40 h.p., rebilt., w/access., \$225. 213-396-6739. C

Mobile Home, 20 x 52, 2-bdrm., 2 baths, 5 Star adult park, no pets, Rolling Hills area, \$14,200. 213-325-4390. C

Tuner-Amplifier, Scott 342 solid state FM stereo, record player, Garrard 40 MKII, 2 Jensen spkrs., 6" woofers, 4" tweeters, \$200. 805-488-7587. C

House, 3-bdrm., 1¾ bath, 1,300 sq. ft., ½-acre lot, zone R-1, cement block fenced yd., det. dble. gar., f/place, hdwd. floors, bltin range & oven, G.I. terms avail., \$26,950. Box 1102. C

Typewriter, IBM elec., recently o/hauled, \$200. 213-325-2982. C

Motorcycle, 1967 Honda CL-90 Scrambler, motor rebilt., \$225. 213-324-7257. C

Diamond, ½ carat, \$190. 714-879-9945. C

Wanted to Buy

Cat, baby, white Persian, must be a female, will pay reasonable price. 213-327-3932, 213-323-8874. D

Adding Machine, mechanical or electrical. 213-532-1824. D

Rifle, .22 w/scope. 213-377-5107. D

Cement Mixer, small cap. with or w/out motor. 213-633-8682. D

Lawn Edger, power, in good working condition. 213-398-2488. D

Band Saw for Shopsmith MK V. 213-596-3691. D

Bicycle, 8 or 10-spd. racer, must be in good condition. 213-633-8903. D

Slide Projector. 213-679-6982. D

Boat, 12 to 14', aluminum, in good condition. 213-370-7749. D

Boat Trailer for alum. boat or towbar. 213-881-2604. D

Knitting Machine, Brother's lace maker, not more than 3 yrs. old. 213-679-7361. D

Airbrush, Paasche VL 1 or 3 or equivalent. 213-376-3156. D

Rentals Offered

House, 3-bdrm., enc. yd., water pd., near El Camino College, lease, \$215 mo. 213-373-5223. G

Cabin, Idyllwild, 1 & 2 bdrm., stream, patio, f/place, \$30-\$35 w/end, \$70-\$85 wk. 213-868-8040. G

Cabin, Lake Arrowhead, close to lake & village, f/place, bar, patio, sleeps 6, \$75 wk., \$35 wk/end. 213-845-5949. G

Apt., 2-bdrm., unfurn., f/place, closed gar., close to Northrop, \$145. 213-755-9379. G

Chalet, Lake Arrowhead, No. shore, completely furn. 3-bdrm., 2 baths, avail. June 15 to Sept. 1, \$75 w/end, \$150 wk. 213-377-5936. G

Cabin, Big Bear Lake, Moonridge, f/place, 2 baths, 3-bdrm., family only, \$125 wk., \$50 w/end. 213-326-7232. G

Cabin, A-frame, Camp Angelus, 2-bdrm., sleeps 10, \$30 day, \$120 wk. 213-644-7111. G

Cabin, Big Bear Lake, \$45 w/end, \$65 wk. 213-320-2002. G

Cabin, 1 blk. Lake Arrowhead, 3-bdrm., 2 baths, f/place, deck, TV, furn. own linens, avail. June 15 to y/end, \$150 wk., \$75 w/end. Box 1101. G

Cabin, Lake Arrowhead, 3-bdrm., 2 baths, sleeps 10, completely furn., incl. washer & dryer, \$150 wk., \$75 w/end. 714-528-2303. G

Apt, deluxe lge. 2-bdrm., unfurn., cpts., dps., bltins, pool, patio, adults, no pets, \$150 mo. 213-325-2512. G

Apt, 1-bdrm., furn., bltins, dps., pool, patio, sub., parking, adults only, no pets, \$155 mo. 213-644-4235. G

Cabin, Big Bear Lake, \$30 w/end. 213-867-0662. G

Studio Apt, 3-bdrm., F/R, 1,800 sq. ft., 2½ baths, f/place, dps., cpts., newly decorated, few blocks from Plant One, no pets, avail. June 15, \$265 incl. elec. 213-676-5425. G

Apt, 2-bdrm., cpts., dps., bltins, all elec., closed gar., 20 min. to Hawthorne, 5 min. to P.V. \$165 unfurn., \$185 furn. 213-375-9397, 213-375-2091. G

Sleeping Room, pvt. bath & entrance, utilities pd., furn., near Northrop, transportation, & shopping, \$55 mo. 213-676-7328. G

Rentals Wanted

House, unfurn., 1 or 2 bdrm. for single person w/small dog, must have small yard, needed by 1st of Aug. or Sept., \$125 up to \$150. 213-677-9498. H

Child Care

Child Care offered, 2 yrs. & up, hot meals, fenced yd. 213-677-5929. I

Personals

My sincere thanks to all my Electro-Mechanical Div. friends who so thoughtfully & graciously expressed their sympathy during my recent bereavement. ANN MANNON. L

EDITOR'S NOTEBOOK

A wise old reporter once prescribed a remedy for that malady known as the editorial dog days—when stories are hard to come by. "Look," he said, "at the classified page. You'll find story tips there." We tried it with our last issue without too much luck. There were a lot of items for sale. More than the usual number of vacation rentals offered (summer's near). And seven families offered free kittens (the long hot spell?).

The current crop of ads was a little more productive. One offered: "Pool table, never used, Tiffany's model Athenia, 3-piece slate with six cues, set of pool balls and set of billiard balls. IRS price \$1,680, will sell for \$1,380 or trade for living room furniture. The number to call is 213-376-9049."

In an attached note from Fidelis Perkinson of the Aircraft Division was the story. She wrote: "My son, Christopher, a former employee, and his bride, Sally, were fortunate (???) enough to win this on the TV program "The Newlywed Game." They have 60 days from air time (May 18) to take delivery, presumably to their one-bedroom apartment where it's almost certain to go through the floor. They do have room for it, however, having no other living room furniture, but would prefer more conventional articles such as chairs, lamps, etc."

* * *

While we are on the subject of ads, we would like to call your attention to the box in the upper lefthand column. It contains necessary instructions involving ads, although we find many people do not read it. Basically, the News strives to run as many ads for as many people as possible. Therefore, we limit each individual to one ad on one subject each issue. And we cannot accept ads that are commercial in nature.

Also, we must edit ads so that a maximum number might appear each issue. Each ad must be submitted on Form C67, available at all locations via normal stores sources. Full information must be included in the ad as to name, division, department number, etc. A price must be listed on for sale and rental items. Box numbers are assigned to those who do not have a home telephone. Reply to the News office and we will forward your name to the individual submitting the ad.

* * *

Northrop retiree Leo Richman seems to have developed an ideal formula for enjoying his "golden years." Now a resident of San Diego, Mr. Richman reports he mixes work as a records management consultant with golf, gardening and travel. Mr. Richman served as chief of Records Management at the Aircraft Division prior to retirement. Last month he spoke at the annual convention of the Business Forms Management Association in Los Angeles. And in October he will speak before the annual conference of the American Records Management Association, also in Los Angeles.

OPENINGS AVAILABLE ON NRC TOUR

A limited number of spaces are still available to Northrop family members and friends for an NRC-sponsored tour of Spain, Portugal and North Africa departing Aug. 22 for 22 days. The cost is \$695 per person,

plus \$49 for taxes and services. An organizational meeting for this tour is set for 7:30 p.m. June 19 at NRC Clubhouse, Hawthorne. Personnel Activities outlets have trip brochures and will accept tour reservations.

NORTHROP NEWS

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No. 11

Published biweekly by Corporate Public Relations and Advertising for the employees of Northrop Corporation.

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Editor—Electro-Mechanical Division Ivy Edmonds
Editor—Ventura Division Peter Toll
Editor—Business Affairs Rosemary Hussey

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Telephone: (213) 675-4611, ext. 4273

Personals

I wish to thank my many friends & co-workers for their contributions to the Heart Fund & the kind expressions of sympathy upon the loss of my wife. A. E. SANDSTROM. L

I wish to extend my heartfelt appreciation to Abner "Whitey" Nelson's friends for their thoughtfulness during his illness & the expressions of sympathy & many acts of kindness extended to me upon his death. JUANITA NELSON. L

To my many friends at the Electronics Div. & Northrop Recreation Club, your kind expression of sympathy in the loss of my mother, is deeply appreciated & gratefully acknowledged. JEAN SCHAEFER. L

Need refrigerator, couch, bed & dresser, dining table, lamp & end table, call Welfare coordinator, Aircraft ext. 4786. L

We wish to express our sincere appreciation to all our friends at Northrop for the most complimentary party & generous good wishes on my retirement. We both thank you & wish you all the best of everything. GEORGE & MILDRED ELLIOTT. L

My family & I wish to thank our many friends for the flowers & kind thoughts at the passing of our mother, Nelle J. Earp, L. R. EARP. L

Personals

Ironing, my home, by piece or basket, reasonable rate. 213-673-2332. L

For Sale or Trade

Dune Buggy body shell, fiberglass, by Barris, \$250 or trade for multi-speed mini bike of equivalent value. 213-397-3504. M

Dune Buggy, VW, r/h, \$200 or take part in trade. 213-328-9322. M

Dodge, 1966 Charger, 2-dr., \$1,100 or trade for truck panel, ½ or ¾ ton. 213-830-5284. M

Pontiac, 1967 GTO, wide oval fiberglass tires, \$1,450 or trade for jeep or late model economy van. 213-372-8171. M

Hitch, equalizing, hvy. duty, used w/travel trailer, \$45 or trade for car transmission cooler. Box 1103. M

Rides and Riders

Rides Wanted

8 a.m. — 4:42 p.m.

Sepulveda & Vermont, Harbor City. Would like ride both to & from work, however, ride home is the most vital. Lillian C. Hensley, Aircraft ext. 2014, 213-534-2970. L



INSPECTING TARGET DRONE
Ventura's Robert Flink with B. M. Gupta, India representative.

Roy Nickerson's 64 Leads Ventura Golfers

Roy Nickerson shot a sizzling net 64 to win the A Flight and top all other Ventura Division Golf Club players last month on the hilly Ekins Ranch Course in Fillmore.

Finishing second with a 68 was Buck Gilmore as Bill Quick, Jr. clipped Bob Jones for third. Young Quick had a 68.96 and Jones shot a 69.26.

Decimal points were needed in the B Flight, too. Warren Sparks took it with a 70.27 over Bill Carruthers who handicapped out to 70.36. Third was Jack Haley with 72.

Al Hammons shot a 75 to win the C Flight with Hal Barber scoring 76.72 to edge out Dick Donald for second. Mr. Donald had a 77. Sue Wiscaver had a 76 to lead the women and Lois Sheridan was second.

Closest-to-the-pin honors went

to Mr. Carruthers, Mr. Sparks and A. E. Berton, a guest. Young Quick had the longest drive of the day.

Wayne Merritt holds a narrow lead, 210 to 200, over Lew Vinson in "Golfer of the Year" standings as the club eyes the June 27 tournament at the Valencia Course in Newhall. Ken Brubaker is third with 140 and Mr. Carruthers and Mr. Haley share fourth with 130.

Oh Those Traps

"Valencia is probably the toughest course in Southern California," according to Golf Club President Lou Gabriel. He says the desert links have 130 sand traps—an average of seven per hole—"and the golfer is confronted by water on nine holes."

Reservations for the June tournament are available.

Glen Estes' Fishing Story Has A Different Twist—It's True

If you ever want to hear about the biggest fish that was almost caught, just ask any fisherman. If you want to find out about the biggest white sea bass caught in the Santa Barbara Channel in recent months, ask Glen Estes.

Mr. Estes hauled in a whopping 45-pounder off Anacapa Island on a recent weekend outing with another Ventura employee, Tool Engineer Keith Barnfield. Mr. Barnfield and Mr. Estes are co-owners of a 25-foot cabin cruiser berthed at Channel Islands Harbor. They use the boat

for fishing.

"I caught three others that day but the 45-pounder is the biggest one I've ever caught," Mr. Estes explained. He is general foreman of Boeing Plastics Fabrication. Mr. Barnfield, who took photographs documenting the catch, also pulled in two white sea bass.

The 45-lb. fish, although not a record, is quite notable. An average white sea bass will come in at from 12-14 pounds, according to experienced fishermen. Mr. Estes and his family ate the big fish—"it lasted about two weeks."



A MAMMOTH WHITE SEA BASS
Glen Estes is a happy fisherman with his 45-lb. prize.

Top Men Support Drone Activity In Growing International Market

The constantly growing international target drone market demands a small corps of sales representatives to service the accounts and pursue new business around the world.

Working for Stiles Burke, director of Ventura Division International Marketing and Robert Flink, assistant director, these sales representatives are responsible directly to the Ventura Division. Their sole concern is Ventura Division products, primarily aerial target drones.

They work hand-in-hand with these people on requests for quotations, proposals, and then as liaison with the customer once a contract is signed.

The value of the representative is manifold. His primary job is to keep you in a good business position within his own environment.

Ventura is dealing with many different governments around the world and their procurement procedures vary. A national can be most effective in dealing with his own countrymen and in coping with economic and political conditions unique to his country.

Variations

In some countries it is a one-man operation. In England, though, the sales representative representing the Ventura Division is a firm. Aerial Targets, Ltd. is a partly owned subsidiary of INTAIR, Brussels, Belgium and C.T. London, representing the Ventura Division as sales representative in England, France, Italy and Belgium.

Schreiner Air Transport NV is another company which represents Ventura. Schreiner deals with the Dutch. Swedair, Ltd., as another example, is Ventura's representative in Sweden.

Ventura also has sales representatives in countries where business has not yet been acquired. Usually we get the representative and then he is instrumental in getting our initial contract.

A good example of a new representative is Brij Mohan Gupta. Mr. Gupta is chief executive of-

ficer of Indian Avitronics, New Delhi, India.

Mr. Gupta represents other aerospace companies in India besides Northrop's Ventura Division. He is the bridge between the American supplier and the Indian customer, either government or private.

We are confident that Mr. Gupta will help us establish a tar-

get drone program in India. He is characteristic of our representatives—competent and highly respected in the proper circles of his own country.

The Ventura Division now has products on five continents. And wherever you find the products you will find Ventura representatives assisting customers and encouraging new business.

Two Teams Set The Pace In Valley Bowling Loop

Two teams walked off with most of the hardware last month as the Ventura Division's Mixed Four Bowling League at the Woodlake Bowl in Woodland Hills wrapped up play.

The first-place team of Art Hirsh, Lee Clark, Jean Myers and Les Myers also received trophies for the Team High Game with an 864.

The second-place foursome of Joyce Nelson, Carol Myers (daughter of league president Les Myers), Ray Nelson and Casey Miller were given trophies for the Team High Series, a 2,384.

Hank LePage had the highest individual game for the men with a 258 and Joyce Nelson's 250, shot the last night of competition, earned her the lady's trophy in that category.

More Winners

Mr. Miller won a trophy for the high individual series (697) and shot the highest average for the league (183) while Kitty Hill's 638 earned her a trophy in the series competition.

Kitty Hill and Ed Burd were the most improved bowlers for

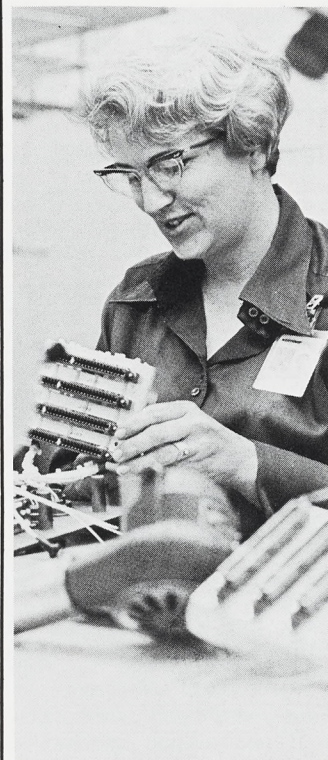
SUGGESTERS—Many Winning Cash Awards

(Continued from page 1)

cutting suggestion.

Receiving \$10 each for their suggestions were Patrick A. Meltzer, Randall P. Jones, Ray Volkmar, John Wade, W.R. Leeds and Fred Valliere. John Bross got a \$12 award.

On The Job



PAT SMITH has been an electronic assembler at the Ventura Division for the past 2½ years. In this photo by Gil Nunn she is working on the MQM-74A decoder.

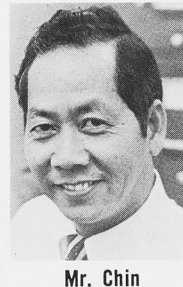
Terry Chin Is New Bridge Champ As Well As President

Terry Chin is not only the Ventura Division Bridge Club's president, he is also the group's best player if recent individual tournament play is any indication.

Mr. Chin was the top finisher of 24 players in the 1970 Individual Championships played in two weeks of lunch hours by Ventura Bridge Club members. Thirty-three bridge hands were played.

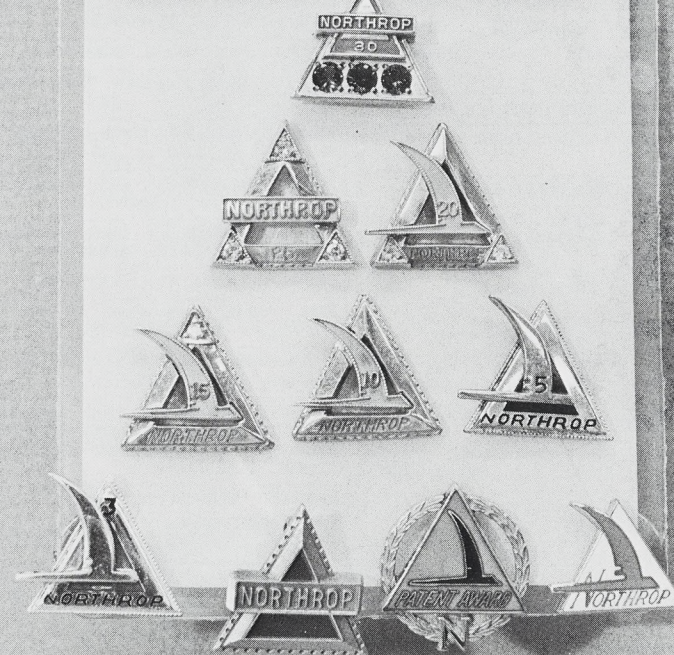
Points were awarded for best play of each hand as partners interchanged with every other hand. Coming in second was Tanet Palmer and Irv Tubb was third.

Other top finishers included, in order, Tom Riley, Rick Riepe, Carlene Pierce, Harry Worth and Fred Longo and Jack Moeller tied for eighth. Last year's champ, J. O. (Doc) Powell, finished 14th this year. Mr. Chin was 10th last year.



Mr. Chin

HERO BADGES



HISTORY IN PINS — Ventura Division 30-year Northrop employee Robert Johnston has a history of his service to the company in this collection of service pins. Stacked in numerical order, the pins are topped by the 30-year variety — a pin not commonly seen.

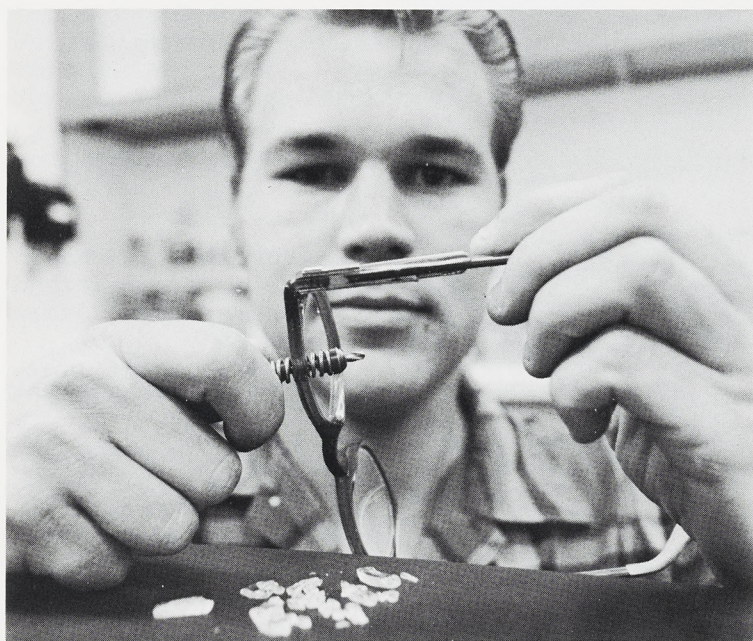
NORTHROP NEWS

VENTURA DIVISION EDITION

Published biweekly by Northrop Corporation, Beverly Hills, California

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June 24, 1970



INSPECTING THE DAMAGE

Douglas Main shows how drill knocked out safety glasses lens.

Safety Glasses Pay Off Again—This Time in 747

Douglas Main of 747 Sub-assembly can thank his safety glasses for his eyesight today.

Mr. Main was checking the motor of his drill, holding the drill about a foot from his face, when the drill tip broke off and headed for his right eye.

"Without the safety glasses he would have been severely injured and possibly lost the sight of the eye," Ventura Division Nurse El-inor Eckels said later. She explained how the glasses saved his eye.

Like Auto Glass

Although the safety glass breaks, it breaks into large pieces, with heavy cutting edges similar to automobile safety glass used in windshields. Also, the drill head bounced off the glasses instead of

continuing through them and into the eye.

Nurse Eckels praised the safety glasses and noted that Mr. Main did not miss a workday because of the mishap.

Wise Owl Membership

Application has been made with the New York headquarters of the Society for the Prevention of Blindness in America, Inc. for Mr. Main's membership in the Wise Owl Club. The club is composed of persons whose eyesight has been saved because of safety glasses.

All employees are encouraged to wear safety glasses in Manufacturing areas at all times. Safety glasses may be prescription or non-prescription.

New Dental Health Care Plan Will Go Into Effect on Aug. 1

Northrop employees and their dependents will enjoy still another new fringe benefit beginning Aug. 1 when provisions of a new Dental Health Care Program, announced earlier, becomes effective.

Northrop is providing two plans covering dental care, services and supplies, for employees without cost. Dependent coverage is optional to the employee for a contribution of 93 cents per week.

Northrop's dental coverage is unique in the industry in that employees may choose between two types of coverage.

Take Your Pick

One option, known as Plan One, allows the employee to continue to utilize his present dental service and be reimbursed for eligible expenses under schedules established by the California Dental Society Schedule B. Plan One includes an annual \$25 per person deductible amount with an annual maximum amount of \$600 per individual.

Plan Two involves utilizing the services of the Dental Center Plan for employees and dependents which operates dental centers in Hawthorne, Lawndale, Long Beach, Santa Monica, Garden

Grove and Sherman Oaks. An office in Thousand Oaks is being considered if there is sufficient enrollment from that area. This plan covers the majority of all dental services with no deductible or maximum amount.

Northrop News presents a summary of both plans on page three of this issue.

Information Coming

Northrop is mailing to the homes of all eligible employees special brochures summarizing the plans, plus enrollment cards and return envelopes for mailing. The enrollment card is to be completed indicating choice of plan and signed. A stamped-addressed return envelope will be enclosed for the convenience of

the employee. Cards must be returned prior to July 1.

W. M. Waldon, administrator of Employee Insurance Benefits, urges each employee to read the brochures carefully before indicating his choice of coverage.

One Of Many

The new Dental Health Care Program is the latest of a series of new or improved benefits introduced by Northrop for employees over the past two years. Already in effect are increased maximum hospital room and board allowances, increased surgical benefits, increased survivor's benefits, additional vacation provisions and improvements in the insurance program of retired employees.

B-1 Program May Yield New Work for Ventura

The Ventura Division may share in the recently announced billion dollar research and development B-1 contract awarded to North American Rockwell.

Welko E. Gasich, Division general manager, said the division is conducting "an aggressive program to seek new business and the B-1 is receiving serious attention."

Ventura could contribute fiber-

glass structural work to the aircraft as well as utilize its landing system experience in developing the parachute recovery system for the supersonic bomber.

A North American survey team visited the division in late May and was very pleased with what it saw, Mr. Gasich said. Ventura is now a subcontractor to NAR in producing the Apollo Landing System for NASA.

OPEN DOOR FOR PRODUCT IDEAS

Do you know of any good products the Ventura Division could produce? Have any new product ideas?

If so, the door is open. That's the message from Division General Manager Welko E. Gasich. He is extending the so-called "open door policy" to another office.

"The door will always be open in George Grogan's office, too,"

Mr. Gasich explained. Mr. Grogan is vice president, Product Development. Personnel can take their ideas to Mr. Grogan and he'll explore them.

Exploring avenues for new business, Mr. Gasich said, was stimulated by Northrop President T. V. Jones at the recent Corporate Management Conference at Ojai. Mr. Grogan may be reached at ext. 325.

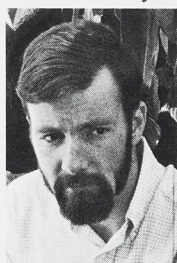
Phi Beta Kappa Honors at Cal For Roger Hudson

Northrop National Merit Scholar Roger L. Hudson, son of Mr. and Mrs. Les Hudson, has earned his bachelor's degree and a Phi Beta Kappa key. Mr. Hudson is director of the Ventura Division General Accounting and Policy.

Roger, 22, graduated last week from the University of California at Berkeley. His degree "with high honors" is in criminology. The Northrop Scholar spent his first two undergraduate years at UCLA.

A graduate of Cleveland High School in Reseda, young Hudson spent one of his undergraduate summers in Europe. He enjoys basketball and skiing as well as travel.

Future plans are not definite. "He took his draft physical a few weeks ago but we haven't heard the results yet," his father said. Graduate school is also a possibility.



Roger Hudson

JULY 4 HOLIDAY

Ventura Division personnel will join other Northrop employees in observing the July 4th holiday with a paid day off Friday, July 3. It is the second three-day weekend of 1970.



A CLOSE LOOK AT PIECES

Ruler emphasizes large size of broken glasses pieces.

Dinner With The Star



BASKETBALL STAR Jerry West shows off the rich dessert he can eat now that the pro season is over for the Lakers. Mr. West, who dined with the Ventura Management Club and was guest speaker, sat next to Don Warner, manager of the Engineering department.

MIDSHIPMEN SEE T-38



MIDSHIPMEN from the Aerospace Engineering class, U. S. Naval Academy, look over Northrop T-38 jet trainer during tour of the Naval Test Pilot School, Patuxent River, Md. The T-38's are utilized by test pilots during their training period and are the only Talons in service with the U. S. Navy. Used extensively by the Air Force in its Undergraduate Pilot Training program, T-38's also serve NASA astronauts and double in a variety of other military assignments in such duty as chase and pace. (U.S. Navy photo)

Northrop Movie Makers Win Praise for 'Superjet'

"Northrop and the Superjet"—recently completed film showing how Northrop and its employees fit into the Boeing 747 program—is the first wide-screen film made in-plant by an aerospace company.

The film, made by the Motion Picture unit of Northrop's Audio Visual Communications, was filmed in CinemaScope, according to John Green, in charge of production, because only the wide screen could adequately depict the tremendous scope of Northrop's 747 participation.

All Northrop divisions participating in the program are represented in the film, including Anaheim where the stringers are built, Northrop Pacific which builds stringer clips and floor panels, and Ventura which provides wing fairings, and the Aircraft Division, where final assembly on the 153-foot long center fuselage section is accomplished.

The film was made under supervision of John Bellevue, manager, Audio Visual Communications, with Mr. Green as writer and director. Larry Simpson and John Hagan were behind the

cameras with Mary Neimeyer as film editor.

Premiere of the Northrop-produced film was at an Ojai meeting of Northrop officials. Since that time it has been screened at all Northrop divisions participating in the 747 program.

In a letter commending the Motion Picture group for its work on the film, John L. McCoy, 747 program manager, wrote: "The film really captures the massiveness, the material handling investment and the complicated logistics of the program. John Green and those who worked with him, deserve special thanks for their conceptual work and the extra efforts they made to meet our deadlines."

Walter Maynes, Howard Kornblue Earn Academic Honors from USC

Two members of the same Northrop Data Processing organization have received top honors from the University of Southern California.

Walter Maynes and Howard Kornblue were elected by the

Northrop personnel have done it again. Final tabulations in the 1970 U.S. Savings Bond booster campaign show that 88 per cent of all employees assigned to California operations are signed to buy bonds through payroll deductions.

The total represents a 7 per cent increase over the 81.1 per cent who were buying bonds as the campaign got under way in May.

During the campaign, 809 employees who were not previously buying bonds signed to purchase them. In addition, 601 individuals elected to increase the amount of their deduction.

And among the 901 employees who were buying Freedom Shares, in addition to bonds, some 785 switched their allotments to buy U.S. Savings Bonds.

Possibility

One point is obvious from the fine showing. Northrop is sure to jump several positions upward among major industries taking

Withholding Changes May Mean More Pay

Northrop employees will likely note a variation—for the better—in Northrop paychecks to be distributed in July.

Two changes are involved. The five per cent federal income tax surcharge is due to expire on June 30, and the value of each individual withholding exemption will be increased from \$600 to \$650 effective June 30.

The end result should mean additional take home pay for most employees, although the amount will vary due to individual circumstances.

USC faculty to membership in two National Honor Societies—Beta Gamma Sigma, the National Business Scholarship Society, and Phi Kappa Phi, the All University National Honor Society. Membership in the latter requires a 4.0 (A) average as one prerequisite.

Mr. Maynes is the director of Corporate EDP Business Systems and the holder of a M.S. degree in quantitative business analysis and a M.B.A. in finance and management. Mr. Kornblue is a senior management science analyst who recently completed studies for a M.S. degree in management science. Both men are pursuing their doctorate degrees.

BIG LUAU SET BY TRAVEL CLUB

Northrop ticket outlets are now offering tickets for a July 26 Luau held annually in conjunction with the kickoff of reservations for NRC's annual year-end holiday group tour to Hawaii.

Entertainment—hula girls, Hawaiian music—begins at 2 p.m. Dinner will be served at 4 p.m. The cost is \$4.50 per person. The place is the Latitude 20 Restaurant, Torrance.

Final U.S. Savings Bonds Participation Total—88%

part in the U.S. Savings Bonds program.

During 1969 Northrop was among the top 10 industrial firms in the nation in the number of employees signed to buy bonds through the payroll deduction plan. The 7 per cent increase in the number of bond buyers is sure to lead to a much higher ranking when tabulations are complete for 1970.

Northrop's fine showing in the 1970 booster campaign was realized through across-the-board increases posted by each of the eight Northrop reporting units.

Leading The Way

Northrop Ventura now ranks at the top of the Northrop list in the percentage of employees pledged to buy bonds. Ventura started the campaign with an 85.4 per cent figure and ended it with a 91.6 per cent showing.

The Aircraft Division increased its participation from 86.3 per cent to 91.3 per cent. The Electro-Mechanical Division jumped from 78.1 per cent as the campaign began to 84.5 per cent at the conclusion. Northrop Pacific joined the effort for the first time in 1970 and posted an 87.5 per cent showing.

Electronics Division launched the campaign with 77.9 per cent of all employees buying bonds and concluded the 1970 drive

with 81.6 per cent signed up.

Northrop Data Processing began with a 69.8 per cent ranking and upped this to 74.1 per cent during 1970. Northrop Corporate Laboratories launched the drive with a 70 per cent mark and wound up with 77.8 per cent.

LAKE MEAD TOUR DISCOUNTS SET

Northrop ticket outlets are offering special discount coupons for "something different" to those visiting the Las Vegas area.

Lake Mead Yacht Tours aboard an air conditioned luxury yacht takes visitors into the upper reaches of Lake Mead on a three-hour excursion. The discount coupons are good for \$2 reductions in the regular \$16 adult and \$12 children fares.

ALUMNI SOUGHT

The Cal Poly Aero Alumni Association of San Luis Obispo is seeking the names and addresses of its graduates among Northrop employees, according to John Halcomb of the Aircraft Division.

Those interested may send their complete address to CPA, P.O. Box 561, Lakewood, Calif. 90712.



BLACKIE SHOWS HIS 'BADGE'

Jim Wesley, left, and Frank Brendel with Alameda's favorite.

Blackie The Pooch Greets All Who Call At Alameda Facility

When Blackie decided to work for Northrop he didn't bother filling out an employment form. He just walked down to the main gate at the Alameda facility, lolled out his tongue, barked a couple of times and went to work guarding the gate.

That was a year ago and Blackie is still on the job and the best known "member" of the Alameda work force. He even has his own badge for identification.

Blackie is part cocker spaniel with the rest indeterminate. No one knows where he came from and efforts to locate his owner have been unsuccessful.

According to the other Security guards who work with him, Blackie is on the job 24 hours a day. He snoozes between visitors, but is up to greet everyone who enters through the gate. Patting him on the head has become as

much a part of entering the facility as showing one's badge to the other guard. At night he makes the rounds with the Security guards.

For his 'round-the-clock work, Blackie is content with his can of dogfood brought to him by various members of the Security force.

RETIREES PLAN IDYLLWILD TOUR

The Northrop Retirement Club has scheduled a special one-day bus tour to the Idyllwild area with departure from Hawthorne at 9 a.m. July 1. The price is \$3.75 per person.

Highlights include Idyllwild, a stop in Hemet and Lake Elsinore, plus a visit to a winery. Call George Sanborn at 674-0852 for reservations.

The M2-F3 Returns to Flight Status



NASA TEST PILOT Bill Dana confers in the cockpit with Flight Research Center crew following first flight of the Northrop-built M2-F3 lifting body. The experimental craft, a possible forerunner of a space shuttlecraft, was launched from a B-52 flying at altitude and glided back to a controlled landing. The M2-F3 is a rebuilt version of an earlier craft, the Northrop-built M2-F2, that crashed in 1967.

New Paychecks Offer Additional Facts, Figures

Did you notice the changes in Northrop payroll checks distributed June 19?

Corporate office, Ventura, Electro-Mechanical, Electronics and Aircraft Division personnel received them.

They are the first offering of a totally new system which promises increased efficiency for Northrop. For the individual employee they provide privacy, plus a great deal of information not provided in the past.

Like a Letter

Each check is sealed prior to distribution so that only information necessary for distribution shows. Statistical information they contain are for the eyes of the recipient only.

Of special interest to employees are the additional items of information included. For example, the new checks show cumulative information as to wages earned to date, withholding taxes deducted to date, the balance held in the accounts of those buying U.S. Savings Bonds, Credit Union shares and loan deductions and other pertinent information. Until the system is fully implemented, some new items may be missing, but will be included later when available.

National Merit Scholar



JOHN P. ORWIN sits between his parents, Mr. and Mrs. Robert J. Orwin, and holds Northrop-sponsored National Merit Scholarship certificate just presented him by Harrison Van Aken, Northrop vice president and president, The Hallcrafters Co. The son of the Hallcrafters employee was one of eight Northrop sons and daughters receiving Northrop-sponsored scholarships this year.

Lloyd Chapman Bound for Norway

Lloyd Chapman, newly appointed regional director, Scandinavian office of Northrop Corporation, is spending the month of June visiting Northrop divisions in the United States.

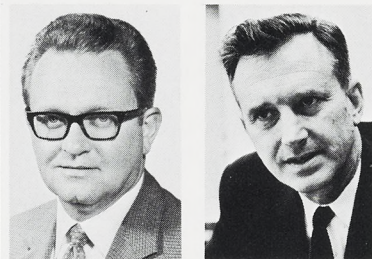
After leaving California, where he will spend three weeks with the Aircraft Division and one week each with the Electronics and Electro-Mechanical Divisions, Mr. Chapman's schedule calls for visits to Northrop's Hall-

crafters plant in Chicago, Precision Products Department in Massachusetts and to the Electro-Mechanical Division's activities in Huntsville.

In Oslo, Norway, he will take over the office established for Northrop by Walt Byers two years ago. "I will be representing all the Northrop divisions in Scandinavia," Mr. Chapman said. "This will include Norway, Finland and Sweden."

Dr. Donald A. Hicks New Vice President Research, Technology

The resignation of Richard E. Horner, Northrop senior vice president-Technical, and the appointment of Dr. Donald A. Hicks as Northrop vice president-Research and Technology have been announced by President Thomas V. Jones.



Dr. Hicks

Mr. Horner

Mr. Horner is leaving Northrop to become president of E. F. Johnson Company, a firm engaged in the design and manufacture of radios and radio components.

In his new assignment, Dr. Hicks will report directly to Mr. Jones with responsibility for the establishment and administration of Corporate plans, policies, and practices necessary for the development and effective utilization of the research and engineering resources of the company.

The holder of bachelor, master

and Ph.D. degrees in physics from the University of California, Dr. Hicks joined Northrop in 1961. He was vice president and manager of the Northrop Nortronics Applied Research department before becoming vice president, Corporate Research, and manager of Northrop Corporate Laboratories.

Mr. Horner has been with Northrop 10 years, serving as general manager of the Aircraft Division for two and one-half years and the remainder of the time as corporate head of research and development.

Ties Not Broken

"We are sorry Dick Horner is leaving our company," Mr. Jones said, "but we realize that it gives him a challenging opportunity as chief executive officer of an excellent company in his home state and we wish him every success. Fortunately for us, the E. F. Johnson Co. has agreed to let him serve as a consultant on our aircraft programs, where he has made so many valuable contributions. We know that his expertise in this field will continue to be extremely valuable to the company."

New Dental Health Program Offers Employees Two Options

Here is a brief summary of the highlights of the new Northrop Dental Health Care Program which becomes effective Aug. 1 for Northrop employees who have completed 90 days active service as of that date and their eligible dependents.

Employees have an option of selecting coverage under either Plan One or Plan Two. Certain elements of the two plans are identical. These include:

Eligibility

Employees and dependents will become eligible for either plan on the first day of the month following completion of 90 days of full-time service (working 20 or more scheduled hours per week), if the employee is actively at work on that date.

Dependents who may be insured are your spouse (unless legally separated) and unmarried children at least 14 days old but less than 19 years of age. Unmarried children who are 19 but less than 23 years of age whose time is principally devoted to attending school may be insured. Stepchildren, foster children and legally adopted children may also be insured if they depend upon you for support and maintenance and have been reported for the insurance. Other dependents may not be insured.

Expenses Not Eligible

Services provided under Workmen's Compensation laws or by any government organization; congenital malformations; cosmetic surgery or dentistry for purely cosmetic purposes; orthodontics of any kind, including appliances or restorations to increase vertical dimensions or restore the occlusion; and dental expenses reimbursed under the

Northrop Group Health Plan. Plan One also excludes prosthetic services or appliances and restorative work started prior to date individual became eligible for plan. Such services are considered started when impressions and fittings have been made.

Plan One Coverage Only

The plan will pay when an insured individual incurs eligible expenses for necessary dental care, services and supplies by reimbursement as outlined under the California Dental Society Schedule B. The allowance for prosthetics (bridges, partial and complete dentures) will be 50 per cent of the scheduled amounts. Reimbursement will be subject to a calendar year deductible amount (\$25) and an annual maximum amount of \$600 per individual.

Eligible Expenses

The following actual expenses incurred by an insured individual for necessary dental care, services or supplies which are administered by or ordered by a licensed dentist which are described below:

A. Diagnostic — for evaluating existing conditions to determine required dental treatment including visits, consultations and diagnostic services. Complete mouth X-rays are included not more than once in three years; supplementary bite-wing X-rays not more than once in any six-month period.

B. Preventive — for prevention of the occurrence of oral disease, to include prophylaxis once every six months, and topical application of fluoride solutions.

C. Oral Surgery — for opera-

tive procedures such as extractions in and about the oral cavity and jaws, including pre-and-post-operative care.

D. Restorative—filling of teeth with synthetic porcelain and plastic materials. Gold restorations, crowns and jacket are included if teeth cannot be restored with above materials and the work has been pre-authorized.

E. Endodontics — pulpal therapy and root canal fillings.

F. Periodontics — procedures for treatment of the gums and supporting structures of the teeth.

G. Prosthetics — (50% allowance) bridges, partial and complete dentures and services to make an existing denture satisfactory. Also, replacement of prosthetic appliances provided:

1. Such replacement occurs after you or your dependent have been insured under this plan for one year (does not apply to employees on Northrop payrolls Aug. 1, 1970 or their eligible dependents). Subsequent replacements will not be made within five years of the date on which appliance was provided or last replaced under this plan.

2. The existing appliance cannot be made serviceable.

Calendar Year Deductible

Twenty-five dollars per person, not to exceed \$75 per family per year. The deductible does not apply to prophylaxis (cleaning) once in any six-month period. This deductible shall consist of eligible expenses applicable to each insured individual and must be paid by or on behalf of such individual each calendar year before any amount is payable under this benefit for the year.

Any eligible charges which are incurred in the last three months

of the year and which are used toward the satisfaction of the deductible amount may also be used toward the satisfaction of the new deductible amount in the following year, with respect to the same individual.

Pre-Authorization Procedure

When dental services exceed \$100 or gold is used in restoration, the claim form must be referred by your dentist to Crown Life Insurance Company for authorization of benefits payable prior to the commencement of work.

Aggregate Payment

A total aggregate amount of \$600 is the maximum that will be paid to any individual during each calendar year for reimbursement of eligible charges.

Benefits Coordination

This plan contains a non-profit provision coordinating it with other group plans under which an individual is covered, so that the total benefit payable will not exceed 100 per cent of the allowable expenses.

Terminations

When an employee is terminated due to lack of work, coverage may be continued through the last of the month following the month in which the event occurs. Benefits will cease at that time except to the extent of work that has been pre-authorized prior to the event. This pre-authorization will be honored only for work that is in progress such as crowns, bridges, etc. Termination for other reasons than lack of work will mean immediate cancellation of coverage, other than work that has been pre-authorized.

Plan Two Coverage

This plan will cover all eligible dental services with no expense to the employee or dependents, except those outlined below. This Dental Center Plan requires the use of one of the six locations indicated previously. There are no maximums, calendar year restrictions or deductibles involved.

Eligible Expenses

There are no charges involved for employee or dependents for diagnostic, preventive, oral surgery, restorative, endodontics or periodontics. Prosthetics charges are: full upper and lower dentures each \$35; upper or lower partials \$30 (the patient pays additionally for gold or precision partials); gold crowns, veneer crowns, inlays or three-quarter crowns each \$20; each unit of fixed bridge work, gold and plastic \$20; and ceramco or porcelain crowns or bridges each unit \$35.

Benefits Coordination

Plan Two contains a non-profit provision coordinating with other group plans under which an individual is covered. The plan will accept the fee of another company's indemnity group plan as an offset for any charges that would ordinarily be charged to the individual.

Terminations

If termination is due to lack of work, coverage will continue to end of month, plus the following month. Terminations for other reasons, coverage will cease immediately except for specific work that has been started. Terminated employees may contact the main Dental Center regarding continuation of coverage on an individual basis.

Duba Family Wins Silver Cup in Newport Regatta

Betty and John Duba took a silver cup at the Opening Regatta held recently in Newport Beach. They were awarded "first in cruising class" for the best maintained and equipped boat.

Betty is assigned to Value Engineering programs in Ordnance at the Electro-Mechanical Division and John formerly worked here in Configuration Management.

Their winning boat is a 42-foot sailing ketch with a diesel auxiliary engine. The hull was built in Taiwan and outfitted in the U.S.

The silver cup was won through their cooperative efforts. "John takes care of the outside and I take care of the inside," Mrs. Duba said. "As a result the inside has a somewhat unnautical appearance. In fact, friends seeing it for the first time said that the interior looks more like a home than a boat with all the handrubbed teak and the orange and avocado color scheme."

John is as careful about keeping up the exterior as she is about the interior. In fact, he insisted that the regatta judges, including the commodore, remove their shoes before he would let them on the boat to make their white glove inspection.

The ketch is the Duba's 14th boat in 20 years. Their first was a 14-footer Mr. Duba built himself. He had grown up along the ocean front and always had a love of sailing. Mrs. Duba became a sailor in a different way. "I married a man who was born to be a sailor and so I had to learn."

CIRCUS TICKETS

The circus — Ringling Brothers and Barnum and Bailey — comes to The Forum, Inglewood, next month and NRC has acquired 500 choice seats which are now available at discount rates.

The tickets, regularly selling for \$5 each, are available to Northrop personnel for just \$3 each. They are good for the 6 p.m. Aug. 2 performance. Contact Personnel Activities.



ON A SUNDAY AFTERNOON
John and Betty Duba enjoy their favorite sport—sailing.



NORTHROP MEN ARE

Do It Yourself Movie Producers

Northrop's Harley Mims of the Aircraft Division has found the best way to break into the movies: he's making his own.

"Reduced Hollywood production has made it very tough for a newcomer to break in today," he said. "As a result there are many fine technicians as well as actors who can't get a chance."

With this in mind, Mr. Mims—who has both a writing and TV background—organized a company of his own. His associates are people like himself who hold a full-time job during the week and get together to work on their film on weekends.

One hundred and ten people are associated in the venture, including six others from Northrop. They are Rex Pedersen, Leroy Holsworth, Bob Howard, Norm Garcia, Harold Davis and Chuck Gann, a musician who will probably score the film.

They have been working several months making preparations, and have constructed three sets on the desert near Lancaster. One is a western town, and another is a ranch setting.

The story, written by Mr. Mims who will also direct, is

about five famous Western gun-fighters who are pitted against each other.

"We are working for more than just a shoot-em-up," he said. "We hope to develop character and produce a film on the order of 'Shane'."

Preparations are now complete and actual shooting began June 20. It was shot on 35mm wide screen for regular theater showings. "We are aiming strictly for family entertainment," he said. "This is not adult or out-of-this-world stuff."

Mr. Mims studied writing at Brigham Young University in 1952 and then taught school for two years. After coming to California, he wrote some TV scripts, but found the motion picture industry difficult to get into. This led him to the idea of organizing people like himself into a company that could produce its own films.

"We look upon our current Western as just a beginning," he said. "We are already planning one written by another member of our company. It is about dune bugging and motorcycling."

In addition to his other activi-

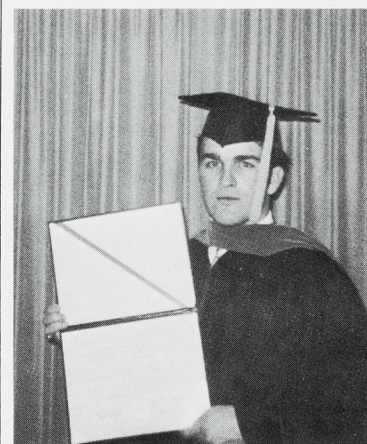


MOVIE MAKING
Rehearsals progress at left as Northrop's Harley Mims, above, ponders next chore to tackle.

Northrop Son Is Among Youngest Ph.D. Recipients

Former Northrop employee Larry Evans, has received his Ph.D. in metallurgy and nuclear physics at Penn State, according to his father, Emmett Evans of the Electro-Mechanical Division's Electro-Optical department.

At 24, Larry is one of the youngest persons to graduate from Penn State with a doctorate. Throughout high school, undergraduate studies at the Rolla School of Mines in Missouri, and at Penn State where he also took his master's degree, he was always on the dean's honor roll.



LARRY EVANS

Following graduation, he will study the possibility of using nuclear-powered furnaces in steel plants as a means of reducing air pollution.

At Northrop, Larry worked with the Aircraft Division in Hawthorne.

HOLLYWOOD PARK RACE DATE NEARS

The final call sounded this week for Northrop employees and friends interested in an NRC-sponsored "Day at The Races" June 27 at Hollywood Park, Inglewood.

The price per person is \$6.25 and includes a buffet luncheon, admission to the park and a seat in a special section reserved for Northrop personnel. Personnel Activities offices are offering tickets.

WE ASKED THEM—What Is Your Fondest Memory?



Robert Eichman, Inventory Control, Ventura:

When I was trying to learn to ski during the holidays and didn't make it. I'd always wanted to learn to ski and I was finally invited by some friends last Christmas. It was a good—if unsuccessful—experience.



Joan Speaker, Order Release group, Ventura:

A trip I took to Washington, D.C. when I was eight years old. We traveled down from my home in New York and I remember I was especially impressed with the Lincoln Memorial. It was very beautiful.

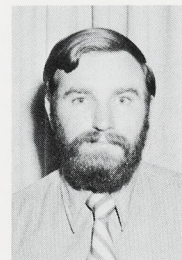
Ella Ruth Barrett, control clerk, Electronics:

My childhood days on my father's farm in Tennessee. A farm is a great place to live. Life is very pleasant there and the time seems to pass by much slower than in the city.



Virgle Hedgcoth, process engineer, Electronics:

The summers I spent on the Colorado River during my years in high school and college. The environment there is very pleasing to life.



Jack Cleveland, aircraft mechanic, Electro-Mechanical:

My fondest memory? It is of the day in 1956 when my wife, Andrea, and I were married in Camarillo. No other day can ever take the place of that.



Rita Inman, secretary, Electro-Mechanical:

I think it was the first vacation my husband and I took after our marriage. It was a sort of delayed honeymoon. We went to Wisconsin Dells, a northern recreation center.

Evelyn Hughes, chief clerk, Aircraft:

I guess I am just an optimist who recalls a lot of nice things. Watching my daughter grow to womanhood and prepare for marriage is certainly a memory I will carry with me always. I think of my 18 years spent here in the Mailroom with fondness because it provided me the opportunity of meeting so many nice people.



Theathres Kittling, router, Aircraft:

That's a tough one. I'll never forget the day I was discharged from the Army following Korea. The day my daughter Shelia was born was wonderful, just as the days my boys, Murvian and Bronski, were born, are still bright in my memory. I'd hate to try to choose between those four days.



Classified

Classified ad service is provided free of charge to all Northrop personnel. Ads for agencies, commercial enterprises and private businesses are not accepted. The Northrop News reserves the right to edit or omit ads. Obtain ad form C67 from organization clerk and mail ad to Northrop News, 170, zone 62. Ads are limited to one item and one ad per person each issue. Deadline is noon Wednesday, one week before publication.

Automobiles For Sale
Ford, 1960 Falcon, 4-dr., fact. rebilt. eng. run 2,500 mi., \$225. 213-324-8853. A
Volkswagen, 1963 camper, 1965 eng., 64,000 mi., \$950. 213-534-1104. A
Volkswagen, 1970, \$1,950. 213-376-3596. A
Station Wagon, 1966 Ford Country Squire, 9-pass., 390 eng., trailer hitch w/elec. brake provision, \$1,600. 213-377-3487. A
Truck, 1969 Ford F-250, ¾-ton w/Camper Special ranger, 390 eng., auto. trans., a/c, pwr. d/brakes, p/s, extra 25-gal. tank, \$3,450. 213-534-2817. A
Volkswagen, 1967, low mileage, \$1,200. 213-672-5881. A
Station Wagon, 1968 Dodge Polara & 1968 21½' Aljo s/c trailer w/cartop boat, 12' alum. & carrier, \$6,750. 213-324-1593. A
Karmann Ghia, 1963 convt., rebilt. eng., r/h, \$750. 213-437-5730. A
Ford, 1963 Fairlane, 4-dr., V-8, r/h, auto., \$495. 213-638-5547. A
Lincoln, 1964 Continental, all power, \$1,500. 213-981-8476. A
Austin Healey, 1960 3000, \$650. 714-892-1401. A
Cadillac, 1965 convt., full power, fact. air, \$2,400. 213-663-3622. A
Corvair, 1960, 4-dr., auto., just o/hauled, \$225. 213-598-3552. A
Volkswagen, 1965, sunroof sedan, \$825. 213-597-3729. A
Mercury, 1966 Comet, 2-dr. Caliente, air, auto., r/h, \$1,150. 213-328-3306. A
Corvair, 1960 Monza, r/h, auto., \$125. 213-830-7489. A
Chevelle, 1965 Malibu, needs repairs, 283 eng., \$250. 213-935-3780. A
Falcon, 1963 4-dr., auto. trans., radio, \$260. 213-532-1439. A
Mustang, 1965, V-8, p/s, d/brakes, center console, \$1,300. 213-677-3908 between 6:30 & 7:30 a.m. A
Chevrolet, 1957, 2-dr. sedan, auto., V-8, \$300. 213-676-9330. A
Corvette, 1966 convt., auto. trans., p/s, AM-FM radio, posit., 327, \$2,000. 213-370-3988. A
Chevrolet, 1966 Malibu convt. S.S., \$1,500. 213-323-8538. A
Chevrolet, 1968 Impala Super Sport, a/c, p/s, auto. trans., \$1,800. 213-372-9954. A
Military Pickup, ¾-ton Dodge, 4-whl. drive, \$485. 213-644-2154. A
Chevrolet, 1963 Impala, \$500. 213-378-1488. A
MG TD, 1950, w/rebilt. TF 1500 eng., good top & side curtains, tools, spare parts, \$995. 805-648-2402. A
Dune Buggy, VW, street legal, f/glass body, many extras, \$1,175. 213-676-9574. A
Datsum, 1967 1600, removable h/top, \$1,550. 213-372-8078. A
Chevrolet, 1963 4-dr. h/top, p/b, p/s, a/c, \$825. 213-324-1873. A
Austin Healey, 1969 Sprite, 4-spd., d/brakes, tach, new soft top, 10,000 mi. \$1,500. 213-324-9076. A
Ford, 1953, 2-dr., good transportation, \$75. 714-532-1510. A
Chevrolet, 1958 Impala, V-8, 2-dr., auto., radio, \$250. 213-675-6294. A
Station Wagon, 1964 Ford Falcon, auto., p/s, r/h, \$750. 213-329-9484. A
Plymouth, 1968 Sport Satellite, p/s, min. bid, \$995; Mustang, 1966, 2-dr. h/top, auto. trans., min. bid, \$695. Credit Union ext. 1117. A
Plymouth, 1969 Roadrunner, extras, \$2,000. 213-676-1085. A
Volkswagen, 1966, radio, sunroof, new batt., \$950. 213-676-5219. A
Volkswagen, 1965 Variant S, 66 h.p., Square-back, \$1,200. 213-320-1677, 9 a.m. to 3 p.m. A
Pontiac, 1967 Bonneville, 4-dr., a/c, all power access., \$1,795. 213-372-8903. A
Buick, 1965 Riviera, full power, new tires, \$1,800. 213-869-2673. A
TR-250, 1968, low mileage, \$2,500. 213-981-8476. A
Cougar, 1967, 4-spd., a/c, 8-track tape, \$1,535. 213-372-1386. A
Volkswagen, 1963, radio, \$700. 213-823-5526. A
T-Bird, 1960, restored, a/c, radio, \$500. 213-326-3813. A
Panel Truck, 1967 Chev., w/stove, sink, 25-gal. water tank, cabinets bltin, \$1,150. 213-326-1178. A
Chevrolet, 1969 Impala Cust., 2-dr., 427 eng., 16,200 mi., p/s, p/b, a/c, Turbo-hydra-matic, \$2,900. 805-525-3288. A
Austin Healey, 1964 3000 MK III, o.d., new top, \$1,350. 213-456-3019. A
Pontiac, 1970 GTO, air, full power, auto. trans., \$200 & take over \$128 mo. pymts., \$3,100 bal. 213-676-0115. A
Volkswagen, 1965, sedan, new tires, \$850. 213-677-6647. A

Automobiles For Sale
Chevrolet, 1965 S.S. Impala, 396 cu. in., 425 h.p., 4-spd., posit., spd. equip., \$1,695. 213-378-5856. A
Firebird, 1968, air, d/brakes, p/s, \$2,395. 213-673-4954. A
Volkswagen, 1960, rebilt. eng., Chev., tires & wheels, \$400. 213-757-3661. A
Household Items For Sale
Bed, Simmons, dble., green vinyl h/board, \$20. 213-374-4703. B
Dresser, dble., w/full mirror & 2 night stands, 3 drwrs. ea., blonde, \$45. 714-774-4853. B
Desk, std., hvy. duty, kindergarten, dble. w/chairs, \$10. 213-835-3985. B
Washing Machine, Sears Kenmore, reg. & delicate cycles, 3 water temps., 1 yr. left on maintenance warranty, \$100. 213-325-1260. B
Crib & stroller, \$25. 213-327-1568. B
Dryer, Norge, gas, \$20. 213-644-5927. B
Dishwasher, Frigidaire, under counter model, turquoise, 7 yrs. old, \$15. 213-379-5690. B
Sofa, knobby brown material, \$20. 213-834-0586. B
Crib, w/mattress & bassett dresser, boy's set, \$69 or sell sep. 213-376-4831. B
Mattress, box spring set, double bed size, custom made, \$85. 213-377-5724. B
Sewing Machine, Morse Fotomatic III, zig zag, auto. buttonhole, used once, \$150. 213-349-6223. B
Miscellaneous For Sale
Trailer, 1969 17½' Aljo, self-contained, easy lift, hvy. duty batt., \$3,000. 213-830-5284. C
Ham Radio, Drake 2-B, Heath DX-60, Q multiplier, key, \$150. 714-776-2709. C
Paddleboards, 11', 12½' & 14' long, \$40. 213-671-2776. C
Mini Trail Bike, 100 c.c., 4-spd., swinging arm susp., \$185. 213-378-5494. C
Lot, 14th & Oxtillo Rd., Desert Hot Springs, water, streets in, \$3,500. 805-252-6521. C
Ski Boat, f/glass, 14' Seafury, 2-cockpit, 40 h.p. Scott outbd., Little Dude trailer, ski equip., \$1,050. 714-837-2757. C
TV, 23" Silvertone, b&w, maple cabinet, \$55. 213-675-6801. C
Camera, Canon QL, 35mm, f1.7, range finder, 1 to 1/500 sec, Cds EE, fully auto., case & filters incl., \$65. 213-377-5700. C
Boat, 13' runabout, 28 h.p. eng. w/12 hrs. since o/haul, \$300. 213-644-9909. C
Mobile Trailer, furn., 10' x 48' w/closed-in 8' x 32' addition, fenced yd., 2-bdrm., Gardena area, \$4,500. 213-327-9687. C
Guitar, Hy-Lo, 3-pickup, case, mike, \$35. 213-324-7257. C
Motorcycle, 1967 Yamaha, 250 cc, street Scrambler, \$350. 213-327-6373. C
Golf Clubs, ladies' Spaulding starter set, 1 yr. old, 3 woods, 4 irons, \$30. 213-374-1889. C
Surfboard, 7' 7" David Nuuhiwa, roundtail, \$50. 213-632-2642. C
Guitar, Fender Mustang, case, & amplifier, Bassie w/tremolo reverb., \$125 ea. or \$225. 213-833-5755. C
Home, 5-bdrm., stucco, 3 baths, family/living rm., in Hollypark, Gardena, existing loan at 7¾% int., can be assumed at no increase in int., \$34,700. 213-321-2047. C
Trailer, metal 1-whl., w/cover, 9x11 tent, 2 sleeping bags, 2 air mattresses, Coleman stove & lantern, \$150. 213-376-1585. C
Dog, male, miniature silver poodle, A.K.C., likes adults only, \$35. 213-378-1658. C
Dog, AKC Yorkie, 9 mos., male, \$125. 213-479-2485. C
Boat, 15' fiberglass Sea Hunter, 65 h.p. Mercury outbd. w/generator, back-to-back seats, other access., Wallstrong tilt trailer, \$975. 805-495-4304. C
Mini Bike, Taco, \$95. 213-371-4037. C
House, 3-bdrm., G.I. resale, cpts., patio, gar., \$2,500 dn., will carry 2nd T.D., \$19,500. 213-835-2396. C
Tire, 6.30x13, 6.00x13, never used, \$10. 213-672-2338. C
Daihatsu, 1961 trimobile, licensed for street, \$100. 213-378-0500. C
Wigs, human & synthetic hair, wash & wear, auburn & brown, tapered back, \$10. 213-534-0593. C
Rifle, Remington Mod. 788, .44 magnum, \$85. 213-534-0577. C
Stere, Voice of Music, w/AM-FM multiplex, tape deck, mikes, 6', Danish modern, & misc. furnishings, \$400. 213-671-0580. C
Trailer, 1966 14' Scotman, sleeps 5, \$700. 213-830-4467. C
Air Conditioner, Frigiking for auto, w/mounting brackets for Ford & Rambler V-8 engs., \$75. 213-375-8774. C
Piano, baby grand, Wurltizer, \$700. 213-377-9821. C
Boat, 12' glass, 3-pass., sold by Sears, takes up to 10 h.p. motor, \$135. 714-827-4886. C
Acreage, 10½ acre, rolling rancho, view of new Perris Lake, low dn., \$990 acre, \$10,300. 213-377-1074. C
Bicycle, boy's 26", \$7.50. 213-676-0666. C
Surfboard, 8'6", \$30. 213-320-3430. C
Horse, Arab mare, registered, 5 yrs., gray, w/1 mo. ¾ Arab filly at side, \$900. 213-834-7535. C
Outboard Motor, 1960 45 h.p. Mercury, \$75. 213-374-6832. C
Guitar, elec., Crown, Gibson-copy, 2-pickup, vib-bar, \$50. 213-673-3066. C
Pups, German shepherd/white Samoan, 2 male, 4 female, no papers, avail. July 15, \$15 female, \$20 male. 213-678-8456. C

Miscellaneous For Sale
Acreage, 5 acres, Antelope Valley, east of new airport, utils., roads, \$400 dn. or \$83 dn. on land contract, \$8,250. 213-378-1026. C
Juke Box, AMI stereo, 200 play, \$186. 213-676-2142. C
Trolling Motor, 1968, elec., 360° steering, 39½" long, 18 lbs., 10-spd., \$60. 714-774-7363. C
Lawnmower, Craftsman Silent, manual reel-type w/catcher, \$27.50. 213-675-0788. C
Amplifier, mono Harman Kardon Allegro w/-response curves, \$20. 213-754-3995. C
Organ, Hand chord, full size mahogany, bench, & \$200 worth of music, \$450. 213-327-3872. C
Ski Boat, 16' Rayson Craft, trailer, 427 cu. in. Ford, headers & water-cooled manifolds, \$2,900. 213-677-4215. C
Engine, Porsche rebilt. 95 h.p., 1600 cc, all access. incl. extractor exhaust sys. \$700. 213-396-6739. C
Home, corner 2-story, 4-bdrm., 2 baths, screen enc. patio, lge. yard w/boat or trailer gate, f/place, cpts., dps., assume FHA or new terms, Fountain Valley, \$31,950. 714-968-5343. C
Manifold, 4-bbl. intake, for Chev. 283 or 327, \$7.50. 213-835-8186. C
Helper Springs, clamp on axle, \$5. 714-639-4438. C
Ammunition, 9mm Luger, .45 acp, .38 Special & .30 M-1 carbine, \$8-\$10 a 100. 213-545-6719. C
Combo-Organ, Baldwin, w/travel case, \$350. 213-757-6960. C
Camera, Yashica Electro 35", f1.7 lens, incl. case, \$75. Box 1201. C
Hair Pieces, blonde, 2 real hair wigs, Dutch-boy fall, 2 wiglets, \$80 or sell separately. 213-635-7942. C
Gun, S&W 9 mm auto. Mod. 39, never used, \$150. 213-532-7175. C
Tennis Racquets, 2, w/press, \$10. 213-372-0720. C
Acreage, 20 acres, in Apple Valley, on Hwy. 18, 6.5 int., deed or contract, easy dn. pymt., will sell in 10-acre parcels, \$15,000. 213-327-3616. C
Trailer, 1953 New Moon, 44', 2-bdrm., bath, alum. patio cover, util. house, to be moved, \$1,000. 714-529-3828. C
Life Golf Membership, Orange County Country Club, \$2,400 & transfer. 213-541-1913. C
Rifle, Mod. 722 Rem. 222 cal. w/scope & ammo, \$90. 714-828-7873. C
Surfboard, 8'6" Bing, light weight, \$35. 213-328-6662. C
Acreage, 20 acres, Antelope Valley, so. of new Palmdale Airport, \$1,732 dn., \$54.17 mo. pymt. \$6,112 10% share. 213-831-5407. C
Golf Clubs, Haig Ultra pwr. reg. irons 2-9 & P.W., \$90. 213-377-7670. C
Surfboard, 9'10" Jacobs, \$20. 213-377-4623. C
Organ, Hammond, bench, M-3 spinet, \$795. 213-377-9489. C
House, 4-bdrm., 2½ baths, tri-level, ocean view, on Palos Verdes Pen., \$54,900. 213-377-5408. C
Tape Deck, Sony, & pre-recording amp. 4-track stereo, \$50. 213-397-5943. C
Surfboard, 9'8" \$50. 213-755-7462. C
Mags, 4 Ansen Sprint, 4 posit. tires mounted, & balanced, \$200. 213-671-7875. C
Wig, stretch-type, brown frosted, \$15. 213-674-6165. C
Mini Bike, 1969, 3 h.p. Briggs & Stratton, \$95. 213-635-1359. C
Jointer-Planer, 6¼" Craftsman, ½ h.p. 3,450 r.p.m. motor, bench, used approx. 1 hr., \$125. 714-962-1143. C
Own-Your-Own Apt., all elec., 2-bdrm., 2 baths, patio, pool, party rm., hobby shop, enc. 2-car gar., adults, can carry papers. \$24,000. 213-327-8047. C
TV, 25" RCA color, \$350. 213-981-8476. C
Wanted to Buy
Bunk Beds, reasonable. 213-329-1723. D
Dove, white, male or female & young. 213-375-4574. D
Bicycles, boy's & girl's, good quality, 26" 10-spd., will repair. 213-375-8460. D
Tool for adjusting gap on aircraft spark plugs, dble. electrode type, will pay ½ of retail price. 213-672-6454. D
Projector, 16 mm motion picture, sound or silent, working condition. 213-398-2488. D
Boots, hi-top, leather, size 12. 213-372-3827. D
For Trade
Books, Blue Chip stamp, trade for S & H Green stamp books. 213-378-3529. E
Free (To Be Given Away)
Dog, 1 yr. old, shepherd & terrier, needs good home w/yard, loves children. 213-428-6833. F
Pups, toy shepherd, avail. July 1. 213-671-7001. F
Dog, miniature Italian greyhound, approx. 2 yrs. old, has shots. 213-675-7891. F
Kittens, colorful, male & females. 213-671-8641. F
Rentals Offered
Cottage, Ocean Bch., San Diego, near Mission Bay, make reservations now, \$70 wk. 714-826-2007. G
Vacation Cabins, Idyllwild, 1 & 2 bdrm., stream, patio, f/place, \$30-\$35 w/end, \$70-\$90 wk. 213-868-8040. G
House, 3-bdrm., 1½ baths, bltins, cpts., utils. paid, Lawndale, \$185 mo. 213-323-5427. G
Apt, furn., 1-bdrm, adults only, no pets, gar., \$100. 213-758-9200. G

EDITOR'S NOTEBOOK

We would like to nominate the team of Helen Belitz, wife of the Aircraft Division's Ted Belitz of Timekeeping, and Anne Navarro for a special "Gracious Loser of the Month" award. They have just missed winning a 13-day all-expense Caribbean Bridge Cruise.

The Northrop Bridge Club in the Hawthorne area ran a special event in April which was a part of the Eighth Annual Duplicate Bridge Tournament sponsored by the National Industrial Recreation Association with which NRC is affiliated. Winner in local events were pitted against other winners across the nation to determine the grand winners and tour participants.

The Belitz-Navarro team finished with a nationwide high score after it won 76 per cent of its games in local competition. However, since the team did not meet the eligibility requirements which specify that team members must be active, retired or immediate relatives of employees of NIRA member companies, it was disqualified for national and regional prizes and trophies.

They did win individual NIRA trophies for the local or NRC competition. The NRC Duplicate Bridge Club meets at 7:15 p.m. on the first and third Friday of each month at the NRC Clubhouse, Hawthorne. Prizes are given for monthly high scores, trophies every three months. No previous experience is necessary for competition, as no master points are awarded, Henry Griggs, NRC Bridge Club commissioner, reports.

* * *

Northrop News staffers consider as their own personal "fringe benefit" the privilege of moving freely about among Northrop employees everywhere. As individuals and groups the men and women who are Northrop are really wonderful people. From them we receive not only encouragement, but tips that lead to many of the stories you read in Northrop News. We openly solicit your suggestions and ideas at all times.

Through the years one suggestion has come up frequently. That is that we introduce a column or do a special story in the vein of "can you top this." The idea being to determine record holders among employees—who commutes the farthest; who has the largest family; who is the old (youngest) active employee; who has a hobby unlike anyone else and so on. We are willing to give it a try, if interest warrants.

So if you have an item for consideration, let us hear from you. Jot down all the facts and mail them to Northrop News, 170/62, in Hawthorne. Be sure to include your name, department and mail address, division affiliation and plant telephone number, just in case we need to contact you.

Rentals Offered	Personals
Chalet , Lake Arrowhead, no. shore, completely furn., 3-bdrm., 2 baths, avail. June 15 to Sept. 1, \$75 w/end, \$150 wk. 213-377-5936. G	Thanks & our sincere appreciation to friends at Electronics Div. & NRC for the party & gift upon my retirement. All good wishes to each of you. GEORGE & SARAH TOMLINSON. L
Apt , 1-bdrm., unfurn., cpts., dps., stove & refrig., ½ block to beach, closed gar., Riviera Village, adults only, \$160. 213-378-7905. G	For Sale or Trade
Metal Detector , Goldak, Mod. 720, \$10 day, \$15 w/end, \$40 wk. 213-674-8088. G	Cadillac , 1967 DeVille, a/c, completely powered, \$3,175 or trade equity for smaller car or camper w/clear title. 714-842-7229. M
Cabins , Lake Gregory & Crestline, sleep 6, make reservations now, \$25 w/end; \$60 wk. 213-391-2040. G	Mustang , 1968 2-dr., auto., 289 eng., power, 30,000 mi., \$1,900 or will accept car in trade. 714-528-8764. M
House , unfurn., Manhattan Bch. near TRW, 3-bdrm., 2 baths, den, 2-car gar., cpts., dps., bltins, f/place, \$300 mo. 213-374-8320. G	Truck , 1963 Ford, ½-ton, small V-8, long bed, \$825 or trade for good 1966 or later VW. 213-831-4586. M
Cabin , Moonridge, Big Bear Lake, 3-bdrm., 2 baths, f/place, completely furn., family only, \$150 wk., \$60 w/ends. 213-326-7232. G	Renault , 1959, 12v., r/h, extra parts, \$150 or trade toward VW bus or van. 213-370-2876. M
Cabin , Lake Arrowhead, no. shore, 200 feet from lake, pvt. dock, \$125 wk. 213-375-2255. G	Rides and Riders
Cabin , Lake Arrowhead, close to lake & village, patio, f/place, bar, sleeps 6, \$75 wk., \$35 w/end. 213-845-5949. G	Rides Offered
House , 3-bdrm., family rm., f/place, 1½ baths, d/washer, cpts., dps., near Northrop in Hawthorne, \$225 mo. 213-679-4400, 213-675-3830. G	8 a.m. — 4:42 p.m.
Resort Condominium Unit , in Mammoth Lakes, accommodates 4, complete kitchen, sep. bdrm., swimming pool, sauna, \$100 wk. 213-375-2622. G	Painter Ave., Whittier Blvd., Colima Rd., Whittier. C. Rosenkranz, Aircraft ext. 1020, 213-696-3467.
Apt , deluxe 2-bdrm., unfurn., cpts., dps., bltins, hanging f/place, 1 child, foot of P.V., closed gar., \$185 mo. 213-373-4298. G	Rides Wanted
Rentals Wanted	7 a.m. — 3:42 p.m.
House , small, in South Bay area by elderly woman, can pay up to \$125. 213-374-2188. H	Valley View & Lincoln, Cypress. Terry Ornelas, Aircraft ext. 2947, 714-827-2447.
Child Care	8 a.m. — 4:42 p.m.
Child Care offered, my home, 9 mos. to 3 yrs., near Northrop. 213-644-8577. I	Painter Ave., Whittier Blvd., Colima Rd., Whittier. C. Rosenkranz, Aircraft ext. 1020, 213-696-3467.
Child Care offered, my home, fenced yd., ½ block to Centinela Park, hot lunch, licensed. 213-671-4856. I	IS IT NEWS? CALL EXT. 4273 HAWTHORNE
Child Care offered, up to 6 yrs., hot meals, experienced. Lomita Torrance area. 213-325-7959. I	NORTHROP NEWS
Personals	Vol. 28 No. 12
The many kindnesses shown us, the tangible expressions sent by Northrop friends helped to strengthen & comfort us on the death of our only son, David. DON & NORMA ALLYN. L	Published biweekly by Corporate Public Relations and Advertising for the employees of Northrop Corporation.
My family & I wish to thank the Northrop blood bank, the NRC & all my friends at Northrop for the flowers & cards during my recent illness. CHARLES C. LYONS. L	Editor-in-Chief, Bryan Weickersheimer. Editors: Tony Cantafio, Electronics Division; Ivy Edmonds, Electro-Mechanical Division; Peter Toll, Ventura Division; Rosemary Hussey, Business Affairs.
I wish to express my appreciation for the many kind expressions of sympathy from my Northrop friends upon the recent death of my mother. BOB KEATING. L	Mailing address: Northrop News, 170/62, Northrop Corporation, 3901 West Broadway, Hawthorne, California 90250.

Leone Drew to Cap 21 Years With Retirement

"I'm going to miss all my friends," says Leone Drew about her retirement this week. And since 1944 when she first went to work at the Radioplane plant (Ventura Division's predecessor) she has made many friends.

Mrs. Drew retires Friday, June 26, with 21 years and eight months of continuous service. She went to work in Van Nuys in 1944, was laid off in 1947 and then re-hired in 1948.



Her efforts over this period of time have been devoted to Procurement clerical duties. Some of her co-workers describe her as the "First Lady" of the Materiel section. "She's been a dependable, good worker. We're going to miss her," said Les Albright, director of the Materiel section.

Mrs. Drew says she has enjoyed working for the company. Now, though, she'll have more time for her hobbies of stamp collecting, reading and collecting antique spoons.

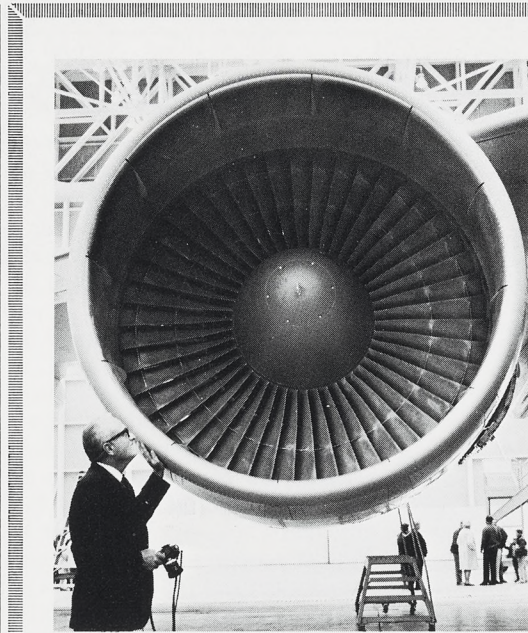
She also hopes to travel and see some of the United States.

The silver-haired lady is one of the few Venturans who personally recall the visits of the late Reginald Denny, famous actor and partner in the original Radioplane firm.

Two Dozen Swim, Play Bridge As Trudells Win Championship

Two dozen members and guests of the Ventura Division Bridge Club recently enjoyed an afternoon of relaxation and swimming topped off by a catered dinner and mixed pairs bridge championships.

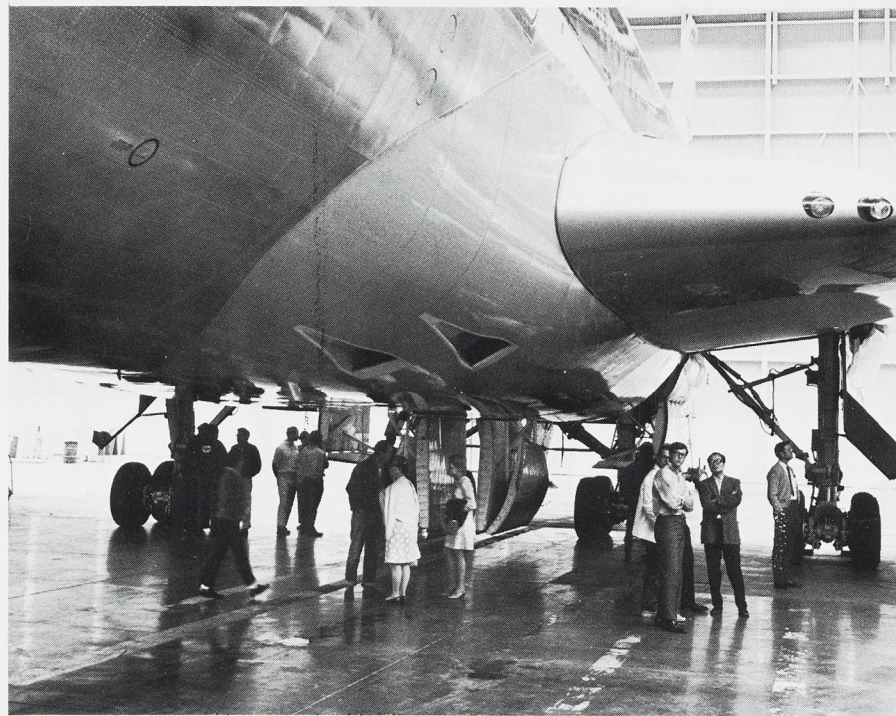
The event took place at the home of Bridge Club President



CLOSE-UP VIEW

Ventura Camera Club President Earl Muehlenbach photographed the wing-to-body fairings produced by the Ventura Division for the massive Boeing 747 during a recent visit to Los Angeles International Airport. He also snapped Ventura Engineer Don Kohn taking a close look at one of the huge jumbo jet engines.

OUR 747 CONTRIBUTION



STUDYING AT HARVARD

John Evans Chosen for Special Program

John Evans, director of Materiel and Production Control in Production Operations at the Ventura Division, is participating in the Harvard Advanced Management Program this summer.

He is taking half of the 13-week program this year and will complete the work next year.

The program is under the auspices of the Harvard Graduate School of Business Administration in Boston, Mass.

Mr. Evans joined the Ventura Division 17 years ago after five years at the Aircraft Division. He holds a B.S. degree from Rensselaer Polytechnic Institute, Troy, N.Y. and has done graduate work at the Industrial College of the Armed Forces and UCLA.



Mr. Evans

Mr. Evans is also a graduate of the Northrop Advanced Management Course conducted at Palo Alto.

Another Ventura man, Tom Flannigan, vice president and manager of the Marketing department, was a participant in the same Harvard program in 1968.

Classes began June 14 for Mr. Evans. He is expected to return to the Ventura Division in August.

New Optometrist Serves Personnel And Dependents

A new optometrist is now serving the needs of Ventura Division personnel and their families.

Dr. Martin Bordo, O.D., visits the Ventura Division each Thursday morning for examinations and fittings. The examination, which is just \$5, also includes a test for glaucoma.

Personnel should telephone Nurse Elinor Eckels at ext. 234 prior to each Thursday if they desire an appointment.

Dependents of Ventura personnel may take advantage of Dr. Bordo's special Northrop rates at his offices in Sherman Oaks, 15300 Ventura Blvd. at Sepulveda. The telephone number is 213-783-5757.

Volkmar's Son Graduates from AF Academy

Not only has Ray Volkmar's son just graduated from the U.S. Air Force Academy, "but now he outranks me."

That is the report from Mr. Volkmar, tool and operations planner in Electrical Assembly at the Ventura Division. The senior Volkmar is a retired Air Force senior master sergeant. His son, Ronald, is a second lieutenant.



Ronald Volkmar

Mr. Volkmar and his wife attended the graduation ceremonies at Colorado Springs, Colo., and heard Secretary of Defense Melvin Laird provide the keynote address.

Academic Honors

Lt. Volkmar, 23, received a B.S. degree in chemistry and was named to the Dean's List for academic excellence. A 1965 graduate of Thousand Oaks High School, Lt. Volkmar spent a year at California Lutheran College before receiving a nomination by President Johnson to the academy.

The eldest of four Volkmar children has been assigned to Columbus AFB in Mississippi for pilot training. There were 700 in his graduating class.

On The Job...



PAM TONEY has worked in the Ventura Division's Plastic Shop for the past two years. Here she is sanding an electrical conduit used in the Northrop T-38 and F-5 jet planes.

Graduate Degrees For Two Engineers

A pair of Ventura Division aerodynamics engineers have received advanced degrees.

Dave Coe received a master's degree in business administration from San Fernando Valley State College. Myles Schwendemann earned a master's degree in aerospace engineering from the University of Southern California.

Mr. Coe is a graduate of Cal Poly at San Luis Obispo and Mr. Schwendemann has a bachelor's degree from Iowa State University. Both men are currently assigned to the B-52 Decoy Program.

TEAMWORK PAYS

Teamwork earned three Ventura Division men \$35 each as they joined efforts for a combined suggestion in the division's Suggestion Awards Program.

Coming up with a new sequence in the production of the MQM-74A fuel tank were F.J. Gary, R.W. Goldberg and F.E. Fields, all of MQM Final Assembly.

Top cash award winner, though, was R. D. Gibson of the same work area. Mr. Gibson earned \$52 for an idea involving countersinking in drone production.

Other cash recipients in the most recent list were William Thomas, \$13, and Morris Schechter, \$10.

Las Vegas Trip Scheduled

The Ventura Division's annual Recreation Club-sponsored trip to Las Vegas is scheduled for the weekend of Aug. 7-9 but reservations and cash deposit must be on file by the end of this week.

Thirty-eight Ventura personnel will ride in a chartered bus to the Thunderbird Hotel in the Nevada resort. They will leave Friday, Aug. 7 and return Sunday evening, Aug. 9.

The bus, and only one is being chartered, will pick up riders at the Ventura Division parking lot and the Balboa Medical Center

parking lot at 5:30 and 6:15 p.m., respectively.

Cost of \$35 per person includes two days and two nights in a deluxe room at the Thunderbird, two breakfasts, a buffet lunch, two cocktails (good as cover charge in the midnight show), as well as tokens for games of chance and souvenirs. All taxes and tips are included.

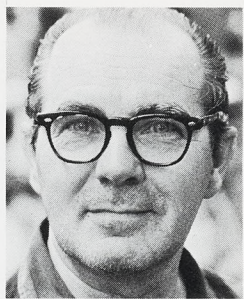
A \$15 deposit must be made with Kathy Miller in the Rec Club office by Friday, June 26, with the balance due by July 20, according to Bill Dierker, Rec Club Special Events chairman.



Mrs. Baxter



Mrs. Cleous



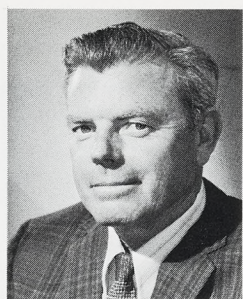
Mr. Eastman



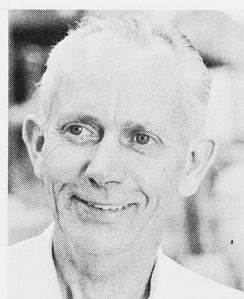
Mr. Easton



Mrs. Sanchez



Mr. Siebers



Mr. Thenhaus

SEVEN MARK 20 YEARS OF SERVICE WITH COMPANY

Seven Ventura Division personnel will be presented with special pins representing 20 years of service to Northrop Corporation.

Each of the seven began working for Radioplane in Van Nuys in the hot July of 1950. They are Theresa Baxter, Martha Cleous, Lloyd Eastman, Hubert Easton, Sibyl Sanchez, Gerald Siebers and Ralph Thenhaus.

Mrs. Baxter and Mrs. Sanchez have worked together in the same department, Electronic Assembly, all of those years. They have worked virtually side by side since

the Ventura Division moved to Newbury Park in 1963.

Mrs. Cleous began in the five-person Accounting department as a bookkeeping machine operator. Today she is supervisor of Accounts Payable and has more people under her than were on the entire staff two decades ago.

Hubert Easton was first hired as a router and is still working the big machines. Lloyd Eastman began in the Paint Shop and is now a drill press operator. Jerry Siebers was a sheet metal worker and is now foreman in Maintenance.

Ralph Thenhaus has worked on Ventura's littlest and biggest flying crafts. He was hired as a worker on the aerial target drone assembly line and today works in final assembly of the Boeing 747 wing fairings.

Receiving 15-year pins this month will be two men from Field Engineering and Test—as soon as they return. Jack Smith is stationed in Iran and Jack Bean is working with aerial targets in El Paso.

Five-year pin recipients are Larry Carroll, Pat Schreiner and Mario Silos.

NORTHROP NEWS

VENTURA DIVISION EDITION

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Vol. 28, No. 13

July 8, 1970



BIG PAPERWORK REDUCTION

Jim Goff and new stack of paperwork. Old stack at right.

EARN \$600

He Slashes Paperwork

Jim Goff has been a project and contracts planner at the Ventura Division for nearly four years. His work has been on the Boeing 747 project.

For three of those past four years he has been trying to correct what he felt was an unnecessary blizzard of paperwork connected with engineering changes and releases in the 747 program.

His persistence has finally paid off. Last week Mr. Goff was presented with a cash award of \$600 in the Ventura Division Suggestion Awards Program.

The size of the award indicates the proportion of the time and effort his suggestion saved. What took three weeks to implement now takes just 3-5 days. Instead of several dozen form copies being circulated only one is needed.

A Matter of Forms

The problem, as he explained it, was in the type of form. Ventura's form was unique in the industry, he said. "Once we agreed on the engineering change all of the paperwork had to be transposed onto different forms for Boeing," Mr. Goff noted.

"Now we have a uniform form. It can be used at the Aircraft Division or at Boeing in Seattle after being initiated here," he added. He has replaced an awkward system with an organized, simplified numbered one.

Streamlining unnecessary and complicated paperwork, as Mr. Goff can testify, not only makes the job easier but it can pay a healthy dividend at vacation time.

ZURAWSKI EARN \$100 FOR PLAN TO END WARPAGE

Ed Zurawski has found that some of the plastic parts in the T-38 and F-5 section were warping as they went through the fiberglass process.

Since the warping required expensive rework, Mr. Zurawski suggested that an anti-warp tool be used in layup. His idea was adopted and he was awarded \$100.

Gary Milliser proposed a special safety ladder for the autoclave and earned \$36 in the latest group of cash recipients. Frank Cua was awarded \$15.

BRN Receives NASA's Thanks For Apollo 13

Thomas O. Paine, administrator of the National Aeronautics and Space Administration, has written a special letter of thanks to Brown and Root-Northrop personnel for the role they played in the safe return of Apollo 13 astronauts.

The Crew Systems Division of NASA's Manned Spacecraft Center which employs BRN personnel utilized a garment storage bag, adhesive tape and the toe cut from a liquid cooled garment sock to devise a makeshift carbon dioxide removal system. This technique was duplicated by the astronauts to make air breathable in the Lunar Module which they occupied for a majority of the aborted mission to the moon.

Administrator's Comments

In a letter to Harry P. Clagett, Northrop project manager for BRN, Mr. Paine said:

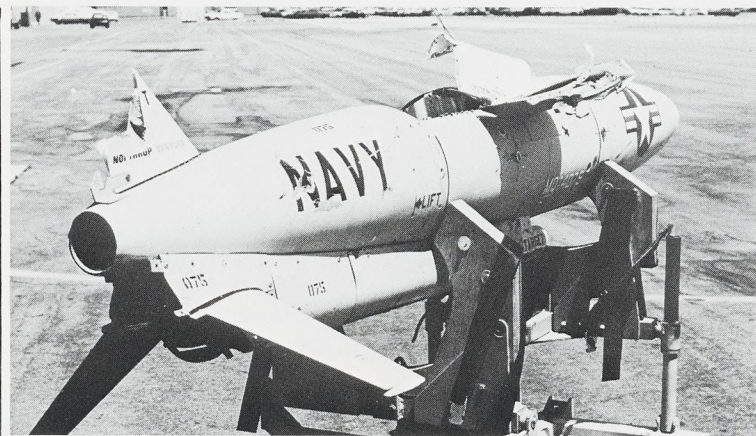
"NASA thanks you for the effort and dedication of your firm in the successful safe return of the Apollo 13 crew. Jim Lovell, Fred Haise and John Swigert join me in citing the special efforts of your Test Support group working with the Crew Systems Division for their assistance in insuring safe completion of the mission through real-time development of CO₂ removal procedures."

Hass Returns From Stanford

Charles P. Hass has completed the nine-month Stanford-Sloan Program at Stanford University and has been assigned to new duties as an assistant to the general manager of the Ventura Division.

Mr. Hass was director of General Accounting and Policy at the Ventura Division before being selected to participate in the Stanford-Sloan Program.

Division General Manager Welko E. Gasich said Mr. Hass will be assigned to special studies.



SHOT DOWN AND REFURBISHED FOR FLIGHT

MQM Earning Reputation For Cost Effectiveness

Northrop's Ventura Division and the U.S. Navy continue to provide taxpayers with significant dollar savings.

Navy crews skillfully refurbish recovered MQM-74A aerial target drones and qualify them for re-use. The survivability and low maintenance of the Northrop-produced MQM-74A results in efficiency and economy.

Two typical cases in point can be found in Targets 14069 and 14075. Target 14069 was launched May 19, 1970 and was attacked several times by an F-4 fighter squadron. It was hit by a Sidewinder air-to-air missile and lost at sea.

Twenty days later a commercial boat found the target still floating in the ocean. Thorough examination at Pt. Mugu revealed the electronics-filled nose section was dry and all interior components satisfactory. This was the sixth flight for the target.

Durability and the rugged characteristics of the other target are detailed in a similar story. Target 14075 was struck by a Sparrow missile and was afloat two to three weeks before recovery.

Refurbishing included replacement of damaged external parts such as the right wing, vertical and aft fuselage section. But the interior of the bird, including the engine and electronics, was in excellent shape. Two main bearings were the only parts replaced in the engine.

Soon this target, like the other, was again airborne.

Ventura personnel can take pride in the record of survivability, re-use and low maintenance which make the MQM-74A one of the Navy's most cost effective targets.



ANOTHER BIRD THAT ULTIMATELY FLEW AGAIN

Several Improvements Made in Northrop Patent Awards Program

Northrop inventors now will receive \$100 when a patent application is filed on their invention under the revised Northrop Patent Award Plan and \$300 if the application results in an issued patent.

The new cash awards are double and sextuple, respectively, the amounts awarded previously under the plan, according to Willard Graham, Corporate Patent director.

Also, when more than one inventor is included in a single patent application, the cash award will be divided equally between or

among the co-inventors, but no co-inventor will receive less than \$50.

"In the past," said Mr. Graham, "the \$50 application award was divided equally, sometimes resulting in a very small award when there were several inventors involved."

He added that in addition to the awards made upon filing a patent application and the issuance of a patent, a special award at the discretion of the committee, may be granted to any employee when his invention is:

- Licensed to others and pro-

duces a royalty income for the company.

- Outstanding and has contributed significantly to the success of the company.

- Sold by the company for a substantial consideration.

"Any special award will, of course, take into consideration the amount of royalties received, costs to the company for research, development, actual deduction of practice of the invention, patent expenses, and other financial and legal considerations," said Mr. Graham.

Something New

Special awards will be acted upon by a "blue ribbon" committee consisting of top company officials. The committee will meet twice a year, and in addition, upon the call of the chairman, to consider special awards.

"The special award feature of the revised plan, which replaces the former royalty income participation schedule, will greatly benefit the inventor," explained Mr. Graham. "With the new changes inventors are assured of receiving \$400 if a patent is granted."

Mutually Rewarding

"We in Patent Administration feel certain that these changes will substantially increase participation in the program, and provide both the inventor and the company with mutually rewarding benefits."

A brochure containing a complete explanation of the revisions will be distributed to all personnel next month.



JOHN K. NORTHROP, CENTER, GUEST SPEAKER
From left, Tom McGaughey (Electro-Mechanical), Jack Conner (Ventura), Steve Finnegan (Electronics) and Elmer Davis (Aircraft).

WITH OLD FRIENDS

John Northrop Speaks At Anaheim Meet

Northrop Management Club members gathered in Anaheim last month to renew old acquaintances with, or to meet for the first time, two of Northrop's most illustrious former employees—John and Margaret Northrop.

Mr. and Mrs. Northrop were guests of the Electro-Mechanical Division Management Club which had extended a special invitation to members of all other Northrop Clubs to attend.

Each of the four Northrop Clubs were represented at the Disneyland Hotel meeting.

Special guests included Mr. and Mrs. Tom Quayle, Mr. and Mrs. Frank Lynch and George Gore. Now retired, Mr. Quayle

was a pioneering Northrop employee and a former Corporate vice president. Mr. Lynch, a Northrop vice president, is general manager of the Electro-Mechanical Division. Mr. Gore is a Northrop vice president, general counsel and secretary.

Tom McGaughey, president of the host club, introduced Mr. Gore who in turn introduced Mr. Northrop.

Mr. Northrop acknowledged a standing ovation with a short talk. He thanked the host club for the opportunity of once again meeting old friends.

"I am well aware of your accomplishments, as individuals and as a company, and I am proud of all of you," Mr. Northrop said. "Working with you through the years is something I shall never forget, a memory I cherish very dearly."

Mr. Northrop explained that rather than talk of the old days at Northrop he would like to present a film called "A Gathering of Giants" that covered the early days of the aerospace industry in California far better than any talk ever could.

The film, narrated by TV personality Cleve Roberts, featured Mr. Northrop, Alan Lockheed,

Donald Douglas, Sr. and T. Claude Ryan, each the founder of a company bearing their name today.

It was a candid and interesting discussion of the old days in the aerospace industry, how each man got started, highlights of their lives and the aircraft they developed.

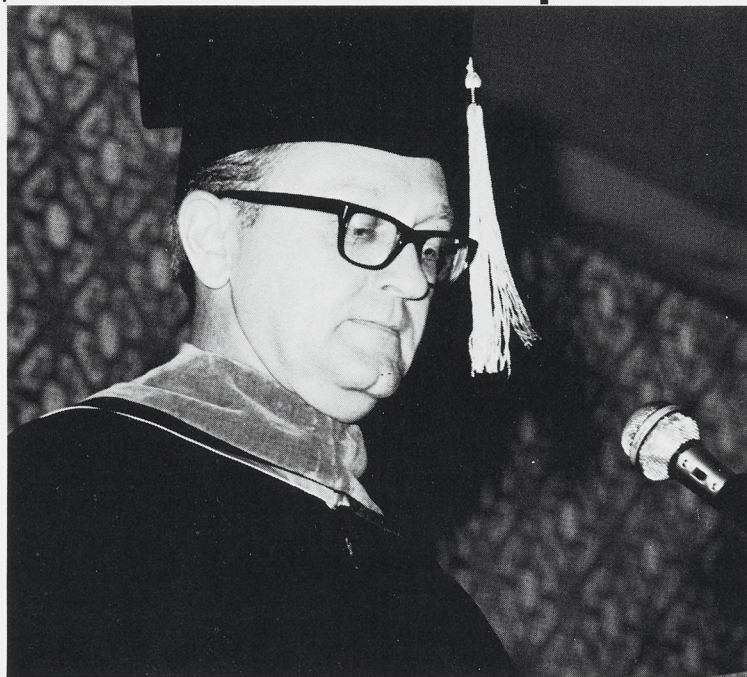
Northrop personnel will find interesting the fact that John Northrop at one time or another worked as an aircraft designer for each of the major aerospace firms represented in the film.

Lifting Bodies Aid Shuttlecraft



NORTHROP-BUILT HL-10 lifting body forms fitting backdrop for four NASA test pilots who have flown experimental lifting bodies being tested to aid development of future space shuttlecraft. They are, from left, Maj. Jerauld R. Gentry, USAF, Maj. Peter C. Hoag, USAF, and NASA civilian pilots John A. Manke and William H. Dana. The Northrop-built M2-F3 lifting body is also being utilized in this program at the NASA Flight Research Center, Edwards, Calif.

Commencement Speaker



ACADEMIC REGALIA was in order for Dr. Donald Hicks, new Northrop vice president - Research and Technology, when he was commencement speaker at recent Northrop Institute of Technology ceremonies. His speech was entitled, "The Technologist: Scapegoat or Scapegoat?"

Gasich to Lead Contingent To AIAA Design Meeting

Led by Welko E. Gasich, Northrop vice president and Ventura Division general manager, a number of Northrop aeronautical engineers plan to take part in the AIAA's Second Annual Aircraft Design and Operations Meeting July 20-22 at the International Hotel, Los Angeles.

Mr. Gasich is serving as general chairman of the meeting. Chairman of the technical program is W.E. Woolwine, Aircraft Division vice president-Engineering.

Mr. Gasich will present the Northrop-sponsored Aircraft De-

sign Award given annually for outstanding aircraft design nationally.

Two Northrop men, Dr. Harold J. Coleman and Walter Watson both of the Aircraft Division, will chair sessions. Dr. Coleman will also moderate a panel discussion.

Scheduled to present papers during the meeting are the Aircraft Division's Joseph T. Gallagher, W.W. Koepcke, R.L. McCormick, W.G. Weldon, Gordon R. Hall, M.J. Jacobsen and Carl J. Weyl and Ventura Division's H.W. Barber and Ray Lavi.

At least one of the planned sessions is classified confidential, necessitating advanced security clearances for those attending. Information on the two-day program may be obtained from the office of Charley Eyres, ext. 1385, Aircraft Division.

Credit Union Pays Dividend To Shareholders

The board of directors of Northrop Credit Union has declared a six and three-eighths per cent dividend for the semi-annual dividend period ending May 31, 1970.

The six and three-eighths per cent is the per annum rate.

All Northrop Credit Union shareholders of record on the May 31 date will earn the dividend. It was posted on all share accounts on June 30, 1970.

The next shareholder statements, to be distributed this month, will reflect the new dividend.

STONE NAMED

Larry Stone, a senior engineer in Materials Research at the Aircraft Division, has been named a national committee member of the American Society for Testing and Material's Committee D-30.

This committee, which has six subcommittees, investigates structures and properties and the development of test methods pertaining to high modulus fibers and their composites.

NORTHROP MEN IN AIAA MEETING

Six Aircraft Division men have taken part in two AIAA national conferences held recently. They are the 5th Thermophysics and the 3rd Fluid and Plasma Dynamics conferences held concurrently June 29-July 1 at the International Hotel, Los Angeles.

M. S. Cahn, G. M. Andrew and W. E. Anderson of Research and Technology presented a paper titled "Recent Experiments in Supersonic Regimes With Electrostatic Charges."

Andrew Wortman of Research and Technology presented a paper on "Boundary Layer Flow at Three-Dimensional Stagnation Points in High-Speed Air Streams."

Walter E. Keller, Aircraft Division, served as a session coordinator.

PAGE PICKS VP'S

Northrop Page Communications Engineers, Inc., has announced the appointment of two new vice presidents. Donald A. L. Hughes will direct Page operations in Europe, Africa and the Middle East. Edwin W. Denzler, III, will head Projects Engineering.

Navy Deep Sea Rescue Vehicle Operations Shown in Art Exhibit

A series of watercolors depicting a rescue mission by the U.S. Navy's Deep Submergence Rescue Vehicle was recently completed by Northrop artist Bob Peck and are now on display at the Electro-Mechanical Division headquarters in Anaheim.

The Deep Submergence Rescue Vehicle as part of the Navy's Rescue System Program, is designed to rescue survivors from disabled submarines on the ocean floor. With a planned operating depth of 5,000 feet, the DSRV can reach any disabled submarine to aid survivors.

Northrop's Electro-Mechanical Division, through its Deep Submergence Systems Program under J. W. Jenkins, pro-

gram manager, provides systems engineering support to the Navy DSSP office which designed and is responsible for development of the DSRV.

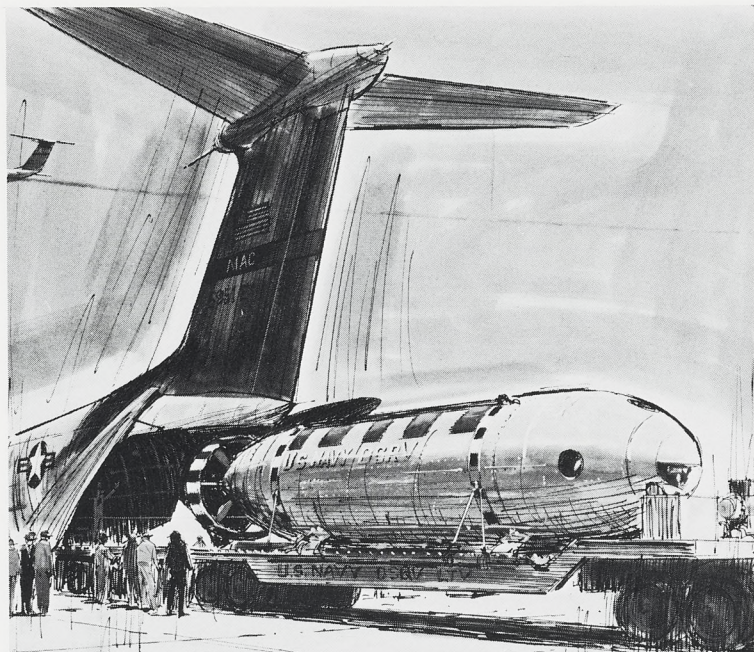
Northrop's work in support of the DSRV program has included test and evaluation procedures, systems analysis, systems integration, preparation and maintenance of coordination drawings and systems drawings, configuration and data management, preparation of technical manuals, training, planning and coordination, development of a financial system and general project planning support.

The 76,000-pound DSRV operates with a crew of three and can carry as many as 24 survivors. The DSRV is now

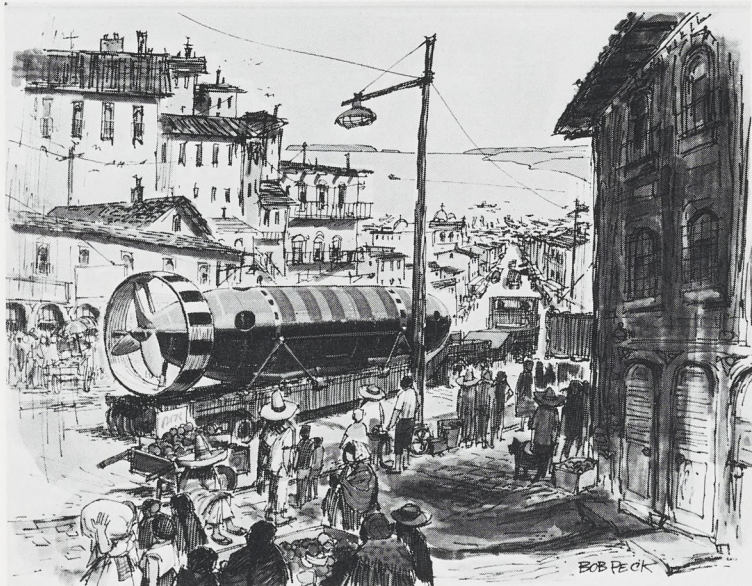
undergoing sea trials.

In addition to its rescue operations, the craft's advanced acoustic and optical sensors, maneuverability and control/navigation systems makes it an invaluable vehicle for deep ocean research, location and recovery work. In many respects it is the first of a new generation of advanced submersibles.

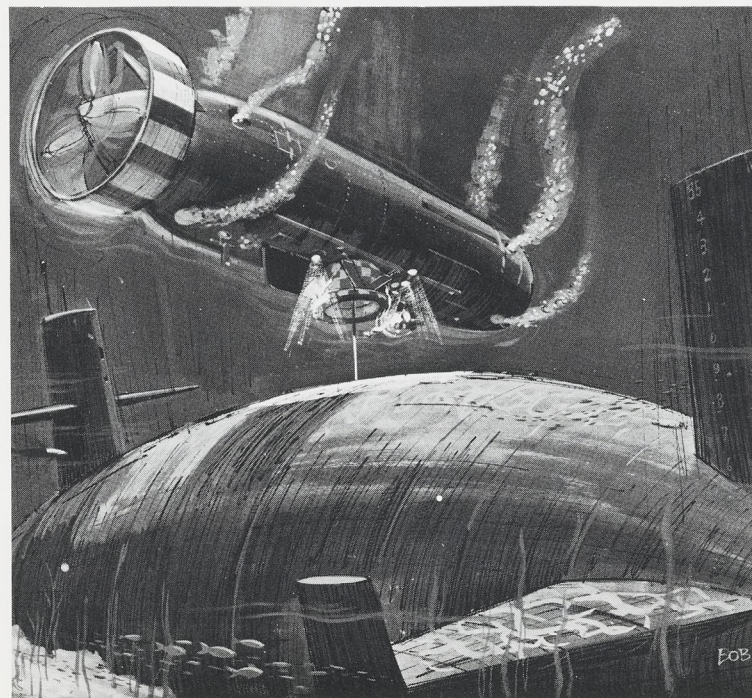
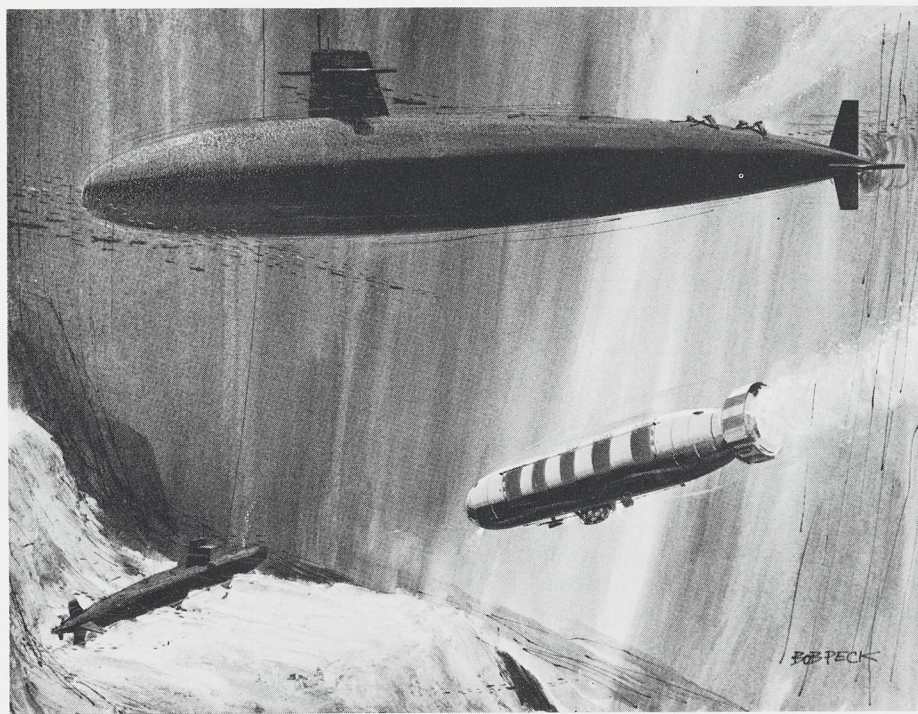
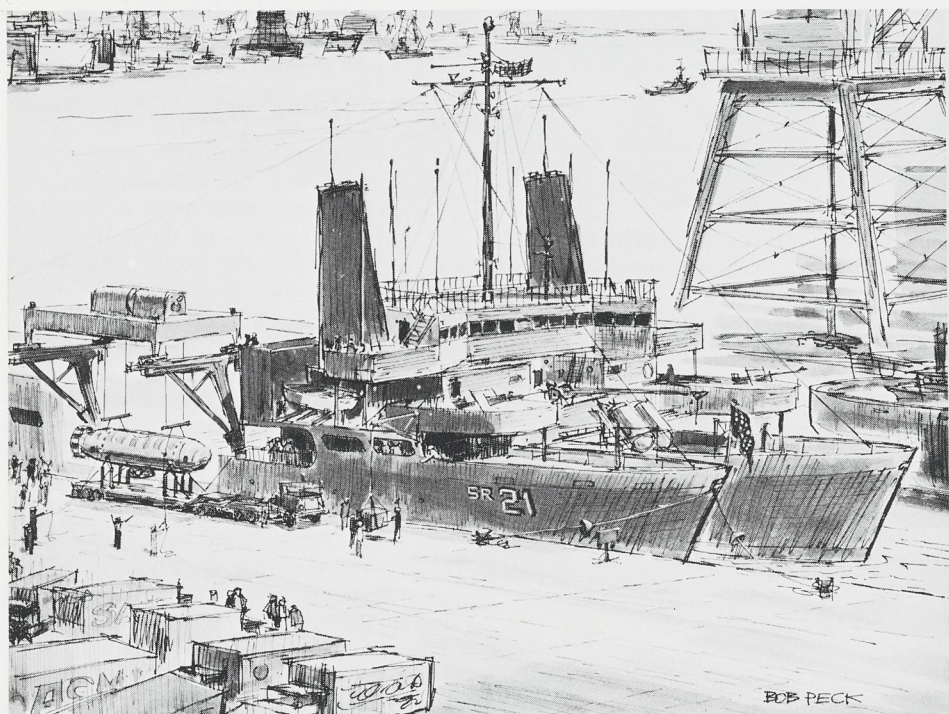
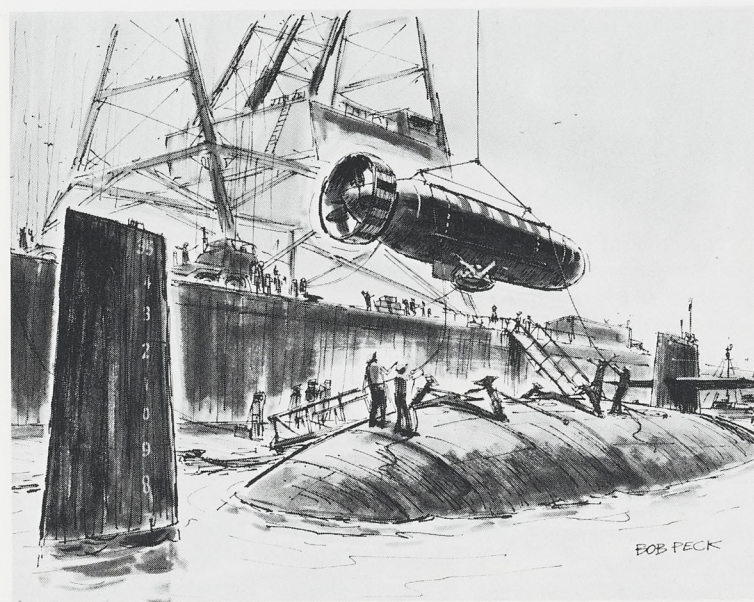
The Deep Submergence Rescue Vehicle is now undergoing tests in San Diego preparatory to sea trials. Northrop has contributed to this at-sea evaluation program which will determine the new rescue system's capability, task times and verify rescue mission sequences.



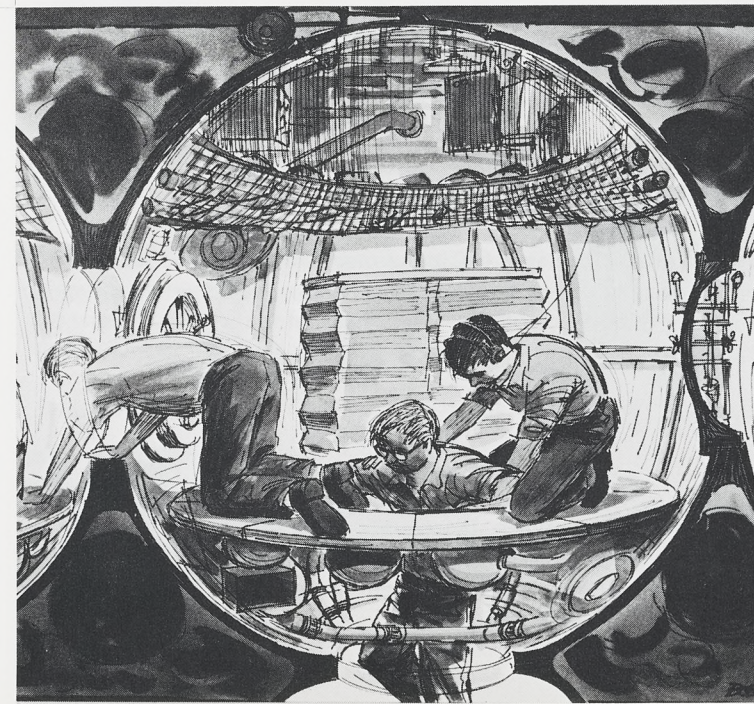
THE 50-FOOT SUBMARINE rescue vehicle is designed to be flown to the port nearest to the required rescue operations. Here the artist has shown the DSRV being loaded into a Military Air Command C-141 transport on its way to an emergency area.

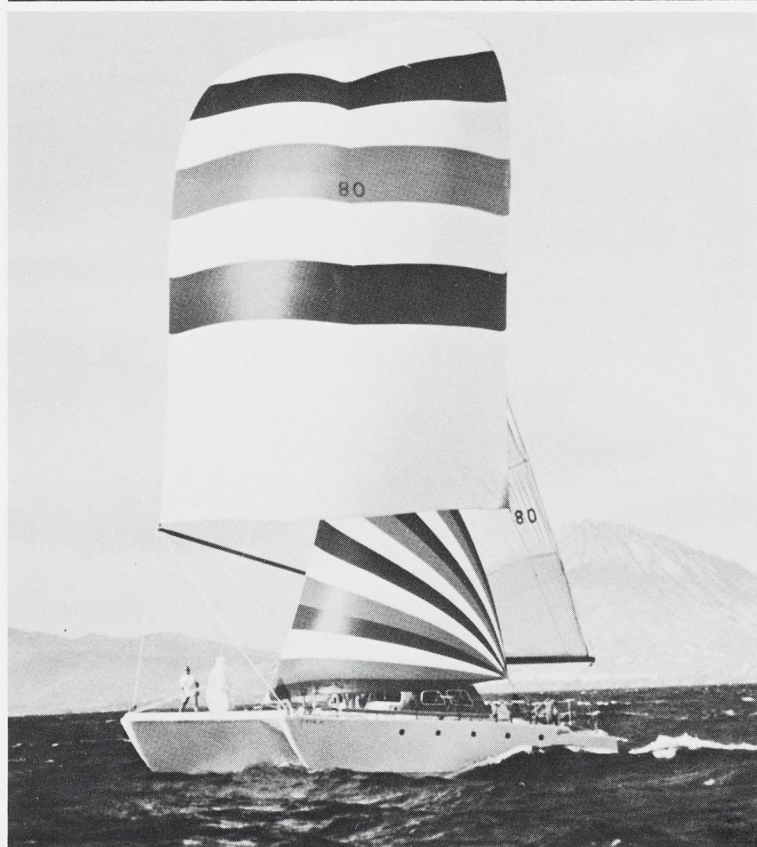


UPON ARRIVAL at the distant area nearest the disaster, the rescue vehicle is moved by truck-trailer to the port. The artist has chosen to show the vehicle being hauled through the streets of a South American city, left. At right, the DSRV is placed atop a "mother" submarine in the port which will take her directly to the underwater site of the disabled sub. Here crewmen guide the rescue vehicle as it is lowered into position atop the mother ship.



ALTERNATE METHOD of transport utilizes a Navy catamaran ship to carry rescue vehicle, left above. Right above, DSRV detaches from mother submarine and approaches disabled undersea craft. Left, Deep Submergence Rescue Vehicle descends over disabled craft to attach airlocks. Right, crewmen from the stricken submarine climb through the airlock to safety.





THE 'SEASMOKE' UNDER FULL SAIL
Northrop sons are aboard for Transpacific Race to Hawaii.

Northrop Sea Scouts Sailing Aboard 'Seasmoke' in Transpacific Race

The "Seasmoke," crewed by six Sea Scouts and six adults, is under full sail toward Hawaii this week in the annual Transpacific Race with two Northrop sons aboard.

Bryan Larsen, son of George Larsen of Manufacturing Research and Development, and Peter Van Wig, son of Ralph Van Wig, a patternmaker, are two of the Sea Scouts.

"Seasmoke" was given to the Sea Scouts of the greater Los

Angeles area by James Arness of TV's Gunsmoke. It is a 58-foot catamaran.

The annual Transpacific Race is expected to take of the eight boats entered from eight to 10 days to sail from San Pedro to Honolulu. Departure was July 4.

Mr. and Mrs. Larsen and Mr. and Mrs. Van Wig are flying to Hawaii to greet the "Seasmoke" when she arrives.

Bryan Larsen is bosun and Peter Van Wig, bosun's mate for the NRC-sponsored Sea Scout ship, the "Sea Gull." Both have been active in sailing for a number of years. Over the past 18 months the boys, plus others selected for the trip, have been racing in and around Southern California preparing for the San Pedro-Hawaii race.

**IS IT NEWS?
CALL EXT. 4273
HAWTHORNE**

HALLMARK TELLS THE STORY

Spoon Collector Just Reads The Handles

Bob Corson, manager, Target Detection Systems, Electro-Mechanical, builds his hobby by the spoonsful.

He collects souvenir spoons, most of which are more than 50 years old. Souvenir spoon collecting was once a very fashionable hobby among well-to-do travelers on the "Grand Tour" of Europe and spoons commemorating various localities were often very unusual.

Favorite items in Mr. Corson's collection include a pair of unique cloisonne spoons from Czarist Russia. The bowls of the spoons have been divided by minute gold filigree and the spaces between filled with transparent enamel. Another from Scotland has the national thistle cast in minute detail on the handle. Others have handles elaborately designed with castles, cathedrals, and even animals. One from Switzerland is fashioned in the form of a chamois. Another spoon handle is made of beautifully executed Dresden china.

Mr. Corson became interested in collecting antique spoons when he found a cigar box of tarnished specimens in a small shop in Philadelphia. The box contained many sterling silver commemorative spoons from the 1890 period.

"I became really hooked," he said, "after I learned what a hallmark was. These are the marks put on English silver by the silversmith and his Guild Hall. They tell the entire history of the piece. For example—"

Like A Book

He picked up a spoon that had embossed on the back of the handle the mark of a leopard, standing lion, a circled A, a profile of Queen Victoria and the initials TS. These were so small that a jeweler's loupe was necessary to identify them.

"The leopard shows that this spoon was assayed by the Guild Hall in London. The lion identifies its quality as sterling, the circled A dates the spoon as 1876 while the queen's profile is proof

that the tax was paid. Finally the initials identify the craftsman."

Thus, being able to identify a spoons hallmark and trace its history aroused his interest until the collection has become a major hobby. He now has about 300 spoons from all over the world.

Should you have a piece of silver around the house with marks on it you have never understood, Mr. Corson volunteers to try to decipher them for you.



UNUSUAL ITEMS

Some unusual spoons from Mr. Corson's collection are, from left, a pique a jour from Scandinavia which is inlaid with transparent enamels to create a stained glass effect; a fine example of Russian cloisonne which dates back 80 years; and one with a Dresden china handle and an embossed view of Dresden in the bowl.



ROBERT CORSON WITH SOUVENIR SPOONS
A majority of spoons in his collection are genuine antiques.

Northrop Sons Attain Eagle Scout Rating

Two Northrop sons, Mike Loek and Mark Thompson, were honored recently at a Court of Honor marking their attainment of the Eagle Scout rank in the Boy Scouts of America.

Mike, 17, is the son of Al Loek, manager of Planning Order Release Control, and Mark, 15, is the son of Marshall Thompson, Management Development specialists, both of the Aircraft Division.

The two Scouts, members of Troop 125, Redondo Beach, advanced from Cub Scouts to Boy Scouts. Both were members of the Aerospace Special Interest Explorer Post 173X sponsored by Northrop. Each has won the Silver Moccasins Trail Award and each is a member of the Order of the Arrow. Mark is a third generation Eagle, his grandfather having attained the rank in 1918 and his father in 1948.

Mike and Mark have each served their troop in a number of ways, including Patrol Leader, Instructor and Senior Patrol Leader.

LUAU TICKETS NOW ON SALE

Tickets are still on sale at Northrop in-plant outlets for a July 26 Luau at the Latitude 20 Restaurant, Torrance, beginning at 2 p.m.

This annual event serves as a kickoff for planning for the NRC-sponsored yearend group tour to Hawaii. The price—\$4.50 per person—includes island entertainment and dinner.

WE ASKED THEM—What Are Your Plans for Vacation This Year?



Jacquie Adams, aircraft data recorder, Aircraft:

I'll be going to Salinas, Kansas, where we are holding a big family reunion. It will be my mother's 80th birthday. Some of the people there will be distant relatives I have never met before. It should be fun.



Mary Woolridge, secretary, Aircraft:

When you read this my husband and I and our German shepherd will be en route to Alaska for a six-week tour. We plan to hit the Yukon Territory, Fairbanks, Dawson and a lot of other places. The dog is looking forward to a swim in the Yukon River.

Rae Leas, secretary, Ventura:

Loafing around the swimming pool in my backyard. We went to Kansas last summer so we'll spend this summer at home.



Ted Bennett, budget analyst, Ventura:

I'm going to visit my mother in eastern Canada. I'll be flying back to Fredricton, New Brunswick and be gone about two weeks.



Jacque Cooper, secretary, Electronics:

I'll be busy touring some of the local sights with relatives who plan to visit me this summer. One day, though, I hope to visit Africa.



Stan Collins, general foreman, Electronics:

I try to split my vacation to get in as much fishing and hunting as I can. I usually spend a week each in Oregon and on the Colorado River.



Bob Criss, structural mechanic, Electro-Mechanical:

I'm heading straight for the All-American Canal and I intend to fish every inch of it along with my wife, Doris, and two boys, Scotty and Bobby.



Doris Criss, assembler, Electro-Mechanical:

I'll be going along with my husband and boys to the All-American Canal. They don't get out with a fishing pole without me.

Classified

Classified ad service is provided free of charge to all Northrop personnel. Ads for agencies, commercial enterprises and private businesses are not accepted. The Northrop News reserves the right to edit or omit ads. Obtain ad form C67 from organization clerk and mail ad to Northrop News, 170, zone 62. Ads are limited to one item and one ad per person each issue. Deadline is noon Wednesday, one week before publication.

Automobiles For Sale	
Truck, 1934 Ford, 292 Ford eng., short bed, \$125. 213-320-7574.	A
Chevrolet, 1965 Impala S.S., 327, a/c, p/s, extras, \$1,100. 213-834-8647.	A
Austin Healey, 1969 Sprite, 4-spd., d/brakes, tach., new soft top, 10,000 mi. \$1,500. 213-324-9076.	A
Volkswagen camper, 1969, 18,000 miles, \$8,000. 213-823-7347.	A
Volkswagen, 1967 Squareback, \$1,199. 213-379-4437.	A
Mustang, 1966, V-8, 30,000 mi., \$1,300. 213-374-3331.	A
Station Wagon, 1959 Chevrolet, 283 V-8, auto. trans., solid lifters, r/h, extras, \$400. 213-679-8577.	A
Fiat, 1967 850 coupe, \$900. 213-673-2929.	A
Corvette, 1966, auto. trans., AM-FM radio, \$2,500. 213-542-3915.	A
Corvair, 1966 Monza, 35,000 mi., \$450. 213-892-0035.	A
Excalibur, 1967 4 SS, 3,900 mi., \$6,500. 213-377-6271, 213-375-6971.	A
Lincoln, 1963 Continental, V-8, h/top, full power, a/c, AM-FM radio, \$800. 213-934-8667.	A
Station Wagon, 1962 Falcon, \$200. 213-834-8280.	A
Cougar, 1967, p/s, p/b, a/c, \$1,850. 213-675-4597.	A
Chevrolet, 1963 Impala, Sport cpe., r/h, a/c, p/s, auto. trans., \$795. 714-633-1986.	A
Chevrolet, 1967 Impala 283, r/h, fact. air, \$1,800. 714-522-3165.	A
Station Wagon, 1968 Dodge Polara w/travel trailer, 1968 21½' Aljo, completely equipped, \$6,395. 213-324-1593.	A
Falcon, 1963, 4-dr., auto. trans., radio, \$280. 213-532-1439.	A
Corvair, 1962 Monza, 2-dr. h/top, auto., \$125. 213-830-7489.	A
Cadillac, 1966 Coupe de Ville, air, full power, 46,000 orig. mi., \$2,500. Box 1301.	A
Panel Truck, 1949 Chevrolet, 1963 eng., \$250. 213-379-4833.	A
Corvair, 1960, 3-spd., \$75 or sell parts. 213-644-5927.	A
Continental, 1964, full power, 72,000 mi. min. bid., \$875; Oldsmobile, 1966 Holiday cpe., 31,000 mi., min. bid, \$1,000; Cadillac, 1966 de Ville, convt., full power, 52,000 mi. min. bid, \$1,850. Credit Union ext. 1117.	A
Saab, 1968, new eng. & clutch, \$1,200. 714-526-5358.	A
Mustang, 1965, rebilt. eng., 289 3-spd., \$1,150. 213-371-5646.	A
Station Wagon, 1958 Dodge, 2-dr., V-8, auto., r/h, \$350. 213-320-0255.	A
Corvair, 1961 Monza, needs work, auto., \$70. 213-379-7853.	A
Dodge, 1966 Monaco 500, 2-dr. h/top, full power, auto., console shift, a/c, \$995. 213-376-9875.	A
Dune Buggy, VW, Safari body, \$1,300. 213-329-7137.	A
Buick, 1964 Riviera, AM-FM radio, full power, a/c, needs body work, \$800. 213-327-2831.	A
Ford, 1953, 2-dr., good trans., \$75. 714-532-1510.	A
Pickup Truck, 1969 Ford model Ranger Camper Special, ¾-ton, 390 eng., auto. trans., a/c, pwr. d/brakes, p/s, \$3,450. 213-534-2817.	A
Chevrolet, 1957 Bel Aire, new eng. & trans., r/h, \$750. 213-372-7377.	A
Dune Buggy, Volkswagen, \$700. 213-672-6952.	A
Household Items For Sale	
Crib, teakwood, w/mattress, never used, \$50. 714-828-6339.	B
Desk, matching chair, glass covered, 7 drwr., \$20. 213-437-5730.	B
Range, O'Keefe & Merritt, gas, 5 yrs. old, \$35. 213-328-9302.	B
Bunk Beds, Metalcraft, dk. green, mattresses, \$25. 213-696-7529.	B
Stove, O'Keefe & Merritt, \$25. 213-675-7891.	B
Crib, mattress, \$25. 213-755-8917.	B
Refrigerator/Freezer, 16 cu. ft. Hot Point, \$75. 213-323-0878.	B
Hide-A-Bed, leaf green, 1 yr. old, \$100. 213-322-5503.	B
Studio Couches, 2, corner group, w/fitted covers & matching bolsters, Nevermar walnut grain corner table, \$50. 213-532-7846.	B
Bathinette, \$10. 213-926-4197.	B
Living Room Set, 2-pc., modern, \$100. 213-277-2920.	B
Rug Shampooer-Floor Polisher, Shetland, H.D., 2-spd., \$30. 213-374-7165.	B
Stove, Kenmore, 4-burners, 2 yrs. old, \$75. 213-674-4563.	B

Household Items For Sale	
Washing Machine, Sears Kenmore, 1 yr. old, reg. & delicate cycles, 3 water temps., 1 yr. left on maintenance warranty, \$100. 213-451-1810.	B
Miscellaneous For Sale	
Motorcycle, 1967 Yamaha 100 cc Trailmaster, \$250. 213-675-8763.	C
Trumpet, Olds Special, \$40. 213-397-5943.	C
Speed Boat, 18' Glen L custom runabout, 327 Chev., velvet drive, mahogany deck, extras, trailer w/elec. brake, \$2,750. 213-378-4959.	C
Saddle, Circle Y brand, 15½" seat, tooled, used 6 mos., \$375. 213-321-1778, 213-644-3379.	C
Record Player, portable, 2 spkrs., Decca hi-fi, \$18. Box 1302.	C
Cabin & 3¼ acres, utils., 6.5 int., deed or contract, in Apple Valley, \$7,900. 213-327-3616.	C
Wet Suit, size small, worn 3 times, \$7. 213-320-3430.	C
Piano, chickering grand, 6' mahogany-rosewood feet & trim, \$850. 213-398-2488.	C
Trailer Hitch for Volkswagen Squareback, \$20. 213-845-5949.	C
Pups, German shepherd, \$10 ea. 213-679-5177.	C
Sailboat, O'Day Widgeon, American trailer, access., \$650. 213-474-5682.	C
Air Conditioner, G.E., \$125. 213-644-6505.	C
House, Holly Glen, 3-bdrm., fam. rm., 1½ bath, cpts., service porch, 220 power, 2-car gar., \$32,900. 213-675-4196.	C
Clarinet, Bundy, \$85. 213-325-8304.	C
Camera, Minolta SRT-101, F1.7, 55mm, filters & blow brush, \$129. 213-644-6274.	C
Piano, baby grand, \$350. 213-676-4297.	C
Piano, bench, Wurltizer hand-rubbed cherry wood, \$595. 213-343-7745.	C
Ski Boots, men's, pr., size 9, \$5. 714-523-5315.	C
Piano, Bungalow, \$200. 213-324-7209.	C
Stereo Console, Magnavox, AM-FM, b&w TV, record changer, \$150. 213-325-7928.	C
TV, 21" Zenith color, console, Mediterranean, all tubes less than 1 yr. old, \$100. 714-842-3918.	C
Motorcycle, M125, 1968 Harley-Davidson Rapido, \$125. 714-537-2457.	C
Acreage, 5 acres, Antelope Valley, east of new airport, utils., roads, \$400 dn., or \$83 dn. on land contract, \$8,250. 213-378-1026.	C
Motorcycle, 1966 Honda Super Hawk CB 77, 32 h.p., 338 cc, \$300. 213-547-4141.	C
Acreage, 2½-acre parcels, Antelope Valley, close to Palmdale Blvd. at 130 St., deeds, 10% dn., 7% int., \$12,500. 213-542-6808.	C
Camel Saddle, w/pad, from Pakistan, carved figures & brass bells, \$10. 714-968-5343.	C
Engine, VW, 1200cc, rebilt., w/all access., \$200. 213-396-6739.	C
Radio Control System, citizen-ship analog proportional, & airplane, Falcon 56, w/eng., complete, \$150. 213-377-6193.	C
Motorcycle, 1966 Yamaha, street Scrambler, 250 cc, \$300. 213-327-6373.	C
Drafting Board, 42" x 31" w/adjustable stand, \$18.50. 714-774-4853.	C
Swimming Pool, Doughboy, 15' dia. x 4' deep, w/ladder, filter & vacuum, \$55. 714-544-3811.	C
Own-Your-Own Apt, all elec., 2-bdrm., 2 baths, patio, pool, party rm., hobby shop, enc. 2-car gar., adults, can carry papers, \$24,000. 213-327-8047.	C
Airplane, 1946 Taylorcraft, less than 50 hrs. since major o/haul on eng. & airframe, Stits polyfiber cover, side-by-side seating w/new Bertea transceiver, \$3,250. 213-644-4638.	C
Rifle, Remington Mod. 788, .44 mag. caliber, never fired, \$85. 213-534-0577.	C
Pups, German shepherd/white Samoyed, no papers, avail. July 15, \$15 female, \$20 male. 213-676-8456.	C
Tape Recorder, Phillips, needs work, \$5. 213-697-1250.	C
Mini Bike, Taco, 3 h.p., 3,600 rpm, \$95. 213-371-8527.	C
Display Cases, table top & wall mount, some illuminated for rocks, shells, \$3-\$7. 213-941-1865.	C
Camper, 1968 Open Road, ¾-ton, on 1962 Chev. truck, auto. trans., \$2,250. 213-370-4475.	C
Stereo Receiver, Kenwood TK-55 FM solid state, 60-music watts, \$140. 213-379-4705.	C
Boat, 16' Glaspar runabout, 75 h.p. Johnson, generator & elec. start, C.G. equipped, hvy. duty trailer, ski, many extras, \$1,495. 714-528-7971.	C
Banjo, Gretsch, 5-string, Bluegrass model, case, extras, \$50. 213-370-5932.	C
Surfboard, 9' 11" Greg Noll, detachable fin, \$35. 213-370-2876.	C
Clairol Kindness 20, complete w/20 rollers, never used, \$12. 213-324-6043.	C
Motorcycle, 1959 dirt Triumph, chrome, fiber-glass tank & fender, \$600. 213-376-4348.	C
Seat, bench-type, custom 1968 International pickup, incl. 2 bucket-type pads, \$50. 213-644-2401.	C
Boat, 14' Super Satellite, trailer, \$750. 213-395-2558.	C
Parakeets, choice of colors, \$3.50. 213-421-9949.	C
Tennis Racquets, Wright & Ditsun & Slazenger, w/presses, \$10. 213-372-0720.	C
House Trailer, 2-bdrm., 8'x35', furn. \$350. 213-676-3814.	C

Miscellaneous For Sale	
Dog, Gordon setter, 18 mos. old, champ. sired, AKC reg., \$50. 213-379-9605.	C
Camper, Dolphin, sleeps 4, fully equipped, \$795. 805-498-8461.	C
Pinball Machine, 1966 Chicago Coin, \$215. 213-372-1386.	C
Mini Bike, 3 h.p., 1969 model, Briggs & Stratton, \$95. 714-635-1359.	C
Rapid Reading Kit, published by Perception Dynamics, Inc., \$25. 213-371-4209.	C
Juke Box, AMI stereo, 200 play, \$186. 213-676-2142.	C
Ski Boat, 16' Rayson Craft, trailer, 427 cu. in. Ford, \$2,900. 213-677-4215.	C
Hearing Aid, Zenith, 1 yr. old, behind the ear-type, \$200. 213-757-7911.	C
Wanted to Buy	
Trailer Hitch, Eaz-Lift, 850 lbs. 213-679-7378.	D
Outboard Motor for sailboat. 805-482-1188.	D
Pigeons, reasonable. 213-323-9586.	D
Maternity Clothes, size 8 or 10, good condition, reasonable price. 213-371-0148.	D
Free (To Be Given Away)	
Kittens, male, part Siamese, 7½ wks. old, 213-835-6710.	F
Kittens, 3 white, 1 black, 4 wks. old. 213-375-9527.	F
Rentals Offered	
Apt, furn., single, w/portable kitchen, ½ block to beach, closed gar., Riviera Village, \$150 mo. 213-378-7905.	G
Studio Apt, 3-bdrm., unfurn., owner's unit, 2 baths, 2 patios, cpts., dps., bltins, laundry fac. space, 2 carports, 2 children okay, \$265. 213-671-0835.	G
Apt, 2-bdrm., cpts., dps., bltins, all elec., closed gar., 5 min. to P.V., 20 min. to Hawthorne, \$165 unfurn., \$185 furn. 213-375-9397, 213-375-2091.	G
Cabins, Lake Gregory & Crestline, sleep 6, make reservations now, \$25 w/end; \$60 wk. 213-391-2040.	G
Cabin, Moonridge, Big Bear Lake, 3-bdrm., 2 baths, f/place, completely furn., family only, \$125 wk., \$50 w/end. 213-326-7232.	G
Cottage, Ocean Bch., San Diego, near Mission Bay, make reservations now, \$70 wk. 714-826-2007.	G
Apt, unfurn., 2-bdrm., cpts., dps., bltin oven & range, bar, lge. bath, pool, adults, no pets, \$150. 213-325-2512.	G
Metal Detector, Goldak Mod. 720, \$10 day, \$15 w/end, \$40 wk. 213-674-8088.	G
Vacation Cabins, Idyllwild, 1 & 2 bdrm., stream, patio, f/place, \$30-\$35 w/end, \$70-\$90 wk. 213-868-8040.	G
Rentals Wanted	
Garage, or ½ space in 1-car gar., for storage of misc. household items, Hawthorne area. 213-679-5668.	H
House, unfurn., 2-bdrm., fenced yard, stove & refrigerator if possible. 213-437-1183.	H
Child Care	
Child Care offered, 2 yrs. & up, large fenced yd., hot lunch, 112th near Crenshaw. 213-677-5929.	I
Personals	
On behalf of my husband, Wieland Norris, I want to take this opportunity to acknowledge w/grateful appreciation your very kind & thoughtful expressions of sympathy. MRS. WIELAND NORRIS.	L
I wish to extend my deep appreciation to the Northrop Recreation Club, the Electronics Contract group for their beautiful planters & to all my Electronics Div. friends for the cards, visits, & calls during my recent illness. C. E. (DOC) TURNER.	L
Anyone witnessing the accident on Prairie & Broadway, Wed., Apr. 8, 7:30 a.m. involving a black pickup & gold 1966 Dodge Dart, call Aircraft ext. 1364 or 213-675-1527.	L
Houses, wanted to be painted. 213-644-8115.	L
For Sale or Trade	
House Boat, 1969 Seagoing, 45' f/glass hull, twin Chrysler V-8's, take over \$280 mo. pymts. on 5% loan, can work out equity, \$19,500 or take trailer boat in trade. 213-941-3804.	M
Pontiac, 1967 G.T.O., 400 cu. in. eng., 360 h.p., wide oval f/glass tires, Hurst linkage, \$1,500 or trade for economy van or panel truck. 213-372-8171.	M
Rides and Riders	
Rides Offered	
8 a.m. — 4:42 p.m.	
Woodland Hills-Canoga Park area, Canoga Park. Veronica Stockard, Aircraft ext. 2757, 213-347-4200.	
Painter Ave.-Whittier Blvd.-Colima Rd., Whittier. C. Rosenkranz, Aircraft ext. 1020, 213-696-3467.	
Rides Wanted	
8 a.m. — 4:42 p.m.	
Woodland Hills-Canoga Park area, Canoga Park. Veronica Stockard, Aircraft ext. 2757, 213-347-4200.	
Painter Ave.-Whittier Blvd.-Colima Rd., Whittier. C. Rosenkranz, Aircraft ext. 1020, 213-696-3467.	
8 a.m. — 5 p.m.	
Carmenita via Artesia Fwy., Cerritos. Evenings only. Linda Barnes, NCL ext. 2330.	

Talons At Sunset



FLIGHT OF FOUR T-38 TALONS, caught by a sunburst behind the control tower at Webb Air Force Base, Tex., made a prize winning photograph for A1C Frank W. Feder of the Base Photo Lab. The composite won a "best single photograph" award in a quarterly newspaper picture contest. Webb is the home of the 3560th Pilot Training Wing, Air Training Command, and the Northrop-built Talon is a familiar sight in its skies. (USAF photo)

EDITOR'S NOTEBOOK

An interesting item turned up in the mail this week inviting all Northrop employees to help "stamp out boredom" by taking part in a campaign titled "Stamps for Children." It was sent by Bob Nelson, information officer at Itazuke Air Base in Japan, for personnel of the USAF's 348th Combat Support Group (PACAF).

Mr. Nelson says the stamps are given to patients of children's hospitals in Fukuoka, Japan. They do a lot to help youngsters through recuperation periods and have led many youngsters into the hobby of collecting stamps. The program started about a year ago as a base project, but since that time stamps have come in from around the world—350,000 of them at last count. One lady sent 100,000 stamps at once. The packet weighed over 64 pounds and cost \$15 to mail.

According to Mr. Nelson any type of stamp will do, especially those cut from envelopes with cancellations intact. The children find them especially interesting, since they can trace the stamps and learn more about America. The address, in case you are interested, is "Stamps for Children," Office of Information, 348th Combat Support Group, APO San Francisco, Ca. 96529.

* * *

In our last issue we passed on a frequently suggested idea that we do a column or story based on the idea of "Can You Top This?" The thought is we might uncover some record-holders such as the person who commutes the farthest to work, or the one with the largest family and so forth.

Two Corporate office ladies, Pat Holladay and Patti Schow, suggested another approach. They wonder how many Northrop employees have selected the Boeing 747 for personal travel. Their idea is to exclude company-sponsored trips and business travel and just name those who are travelling on their own. For example, on vacations.

Pat Holladay selected Pan Am's 747 flight to Honolulu March 19 and Patti Schow took the same flight June 6. Nikki Magraudy, also Corporate, made the same flight on the same airline May 28. Pat Varvel, Aircraft Division, left June 27 for a Pan Am trip to Japan, Hong Kong and the Far East. Any others?

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Gilmore Named to Hall of Fame

A Ventura Division man, Dale (Buck) Gilmore, is one of nine initial members of the Van Nuys High School athletic hall of fame.

Mr. Gilmore, general foreman of the Assembly and Paint Shop, was joined by gridiron great Bob Waterfield and Olympic swimmer Ted Devine, son of actor Andy Devine, in recent induction ceremonies.

As a Van Nuys High School sophomore in 1934, Mr. Gilmore ran the 100-yard dash in a record-setting 9.9 seconds. The school mark has been equaled three times but never broken.

He also participated in the 220-yard dash and long jump but

the century was his specialty. His speed was used on the football field, too. In 1937 he transferred as a sophomore from Miramonte J.C. in Atascadero to enroll at UCLA.

On the Bruin football team he



Mr. Gilmore
1938



Mr. Gilmore
1970

played alongside Kenny Washington and Jackie Robinson, among others. As a halfback and co-captain of the 1939 squad he led the UCLans to a tie for the West Coast championship with arch-rival University of Southern California.

"But the conference took a secret ballot and voted to send USC to the Rose Bowl. We went to the Pineapple Bowl in Honolulu, instead," he recalls with a smile.

Mr. Gilmore never entered the pro football ranks. At 5'8" and 165 lbs. he was too small, he explained. The native of Oklahoma who is part Cherokee Indian moved to the San Fernando Valley at age two and has lived there ever since.

Now the grandfather of seven, he has been with the company 27 years. His eldest son was co-captain of the Alemany High football team some 15 years ago and the family is athletically inclined.

But since four of his six children are daughters it looks like he will have to wait a few more years to see if there are any more Hall of Famers in the Gilmore family.

Picnic Tickets Will Be Available Next Week

Tickets will go on sale next week for the Ventura Division Recreation Club-sponsored summer picnic to be held Aug. 29 at California Lutheran College in Thousand Oaks.

Personnel may purchase tickets for the event at the Recreation Club office from 11 a.m. to 1 p.m. daily or from special ticket sellers stationed on the mall during lunch hours.

Highlights of the picnic will include a picnic lunch, games and entertainment. Ice cream and soft

drinks will also be available.

Ticket costs are employees, 50 cents; family (over 16), 50 cents; children from 6-15, 25 cents; children under six are free.

Guests, accompanied by Northrop personnel, will pay \$1 per person over age 16. Children under 16 will be 25 cents, and under six, free.

Because the picnic area is somewhat open, personnel and guests will be requested to wear special identification tags which will accompany their tickets.

Sparks, Hahn Shoot 74's to Lead Ventura Golfers on Tough Course

Warren Sparks and Al Hahn shot net 74's to win their respective flights as the Ventura Division Golf Club played "swimsuit and sandbox" at Valencia near Newhall.

"That course has an average of seven sand traps per hole and nearly every other hole has a water hazard," lamented chief scorer Ron Aitken.

There was a tight race between Lyle Williamson and Bob Jones for second in the A Flight behind Mr. Sparks. Mr. Williamson finally edged out the man with golf's greatest name, 78.56 to 78.83.

Jack Haley shot a 75 for second in the B Flight and Phil DeLurgio had a 77 for third. Sue Wiscaver won the Ladies Flight.

ANDY TYSZIEWICZ WINS CUE STICK AFTER LEADING BILLIARDS PLAYERS

The Ventura Division's best pool shooter — at least for the first half of 1970—is Andy Tyszewicz.

Mr. Tyszewicz was presented a new cue stick after winning the first half playoff in straight pool. After beating Dick Ranes in the playoffs he was given the stick for over-all performance, number of victories and average increase.

Other players now competing in the Recreation Club-sponsored

Billiards Club are Hal Hunsberger, Ken Brubaker, Bill Mullins, Don Reynolds, Marty Zeller and O.H. Caperton.

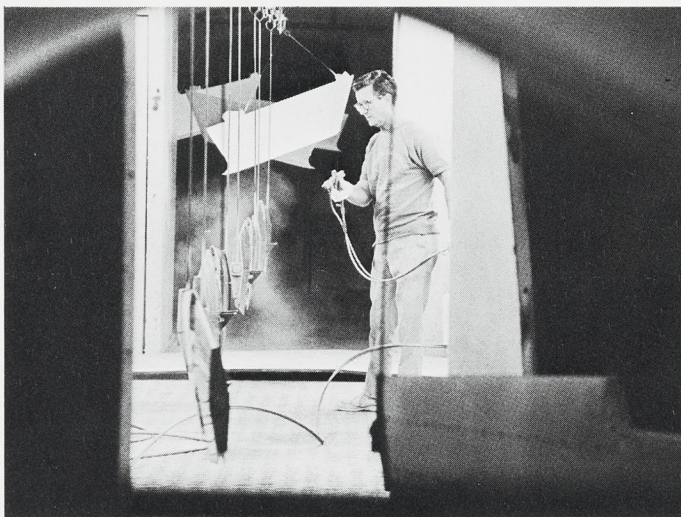
At Simi Bowl

Competition takes place each Thursday evening beginning at 6:30 in the Simi Bowl in the Simi Valley. Cost is a nominal \$1.50 per week.

New players are welcome, according to Club Commissioner Ranes. He can be reached at ext. 622 for further information.



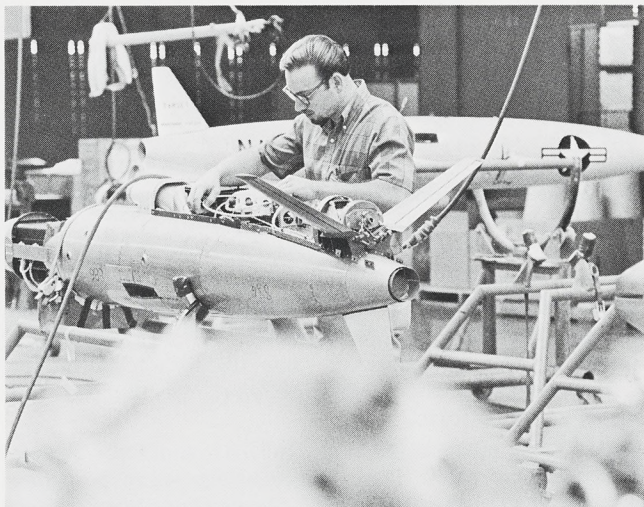
Bessie Kimsey assembles portion of the wing.



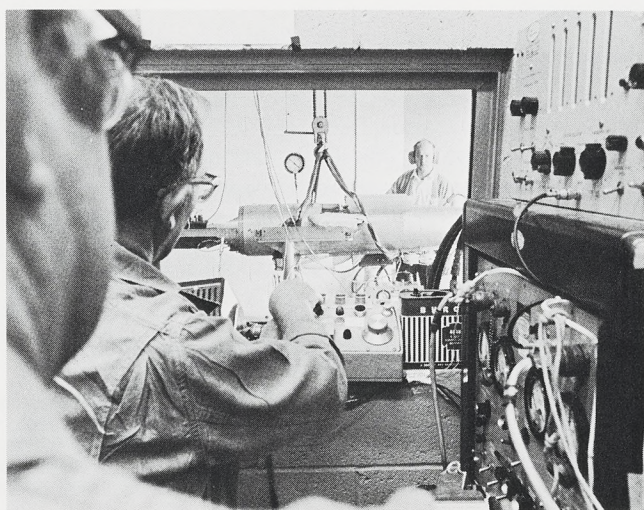
Jack Phillips paints wings swinging through on line.



Alta Hegeman uses magnifying glass for detail work in electronic assembly.



Cliff Mark adds finishing touches before paint job.



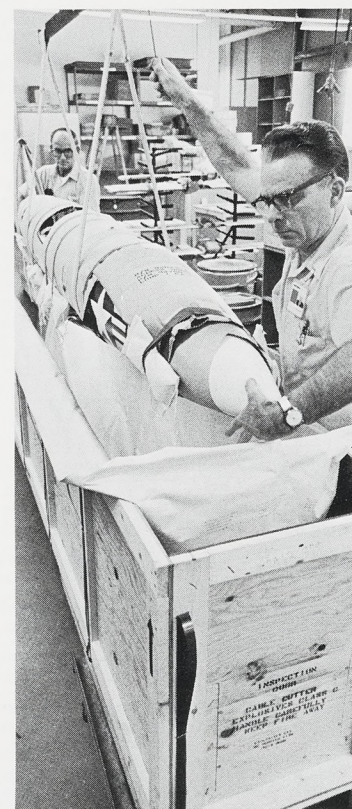
Ted Anderson, Jack Landis, Lou Castagna test engines.

MQM-74A A Photo Essay In Assembly Skill

BY ROBERT THORNTON



Al Trujillo prepares finished targets for shipment.



John Howarth, left, and Cliff Mileham gently load the aerial target drone into a shipping crate.

NORTHROP NEWS

VENTURA DIVISION EDITION

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Production Operations Personnel Save \$1.2 Million Through CMIP

Production Operations personnel at the Ventura Division have topped their Cost Management Improvement Program savings target for 1969-70 by nearly 20 per cent.

Ken Geller, CMIP coordinator for Production Operations, said final tabulations for the fiscal year show that the savings target of \$1 million was topped by \$1,196,762. Thus the total savings in that organization was \$1,196,762.

"Production Operations personnel should be very proud of their savings," Mr. Geller commented. He said three major areas of activity produced the savings:

—Improved purchasing, substitution of materials and elimination of excess labor.

—Improved methods of operation. Finding an easier, less expensive way while retaining the high quality of Ventura products.

—New and more efficient ideas

for production such as an elevated monorail for easier handling of large parts.

100TH 747 SHIPSET IS SENT TO BOEING

Northrop Corporation has delivered, on schedule, its 100th shipset of components for use in assembling fuselage sections of Boeing 747 superjet passenger aircraft.

The milestone shipment was marked at the Aircraft Division July 10. Components of the 100th shipset will be utilized by The Boeing Company to assemble the first 747 destined for use by Braniff International on its domestic and international routes.

Actually, Northrop has delivered 103 shipsets of components. Early in the program three shipsets were used in building the 747 mockup, static and fatigue testing.

"The success of our Cost Management Improvement Program will help contribute to the total success of the division in its desire to provide low cost solutions to customer requirements," Mr. Geller said.

He cited Division General Manager Welko E. Gasich's comments on the challenging state of the economy and the demand for increased efficiency.

"CMIP gives everyone the opportunity to participate in helping the division acquire new business," he said.

Sewing Machines Used in 747 With His Suggestion

A time-saving suggestion to expedite work in the plastic layup area has earned a Ventura Division Paralab sewing machine mechanic a \$111 award in the Suggestion Awards Program.

Juan Wilson suggested that instead of taping the so-called bleeder cloth, a pre-impregnated fiberglass material, it could be done more quickly and easily with a sewing machine.

Taking Notice

The material, Mr. Wilson noticed, had to be unrolled from rolls 12 inches wide and many yards long. Then it had to be folded and taped before being cut and applied to the plastics process. Instead of taping it is now sewn.

Mr. Wilson had received \$98 for the idea earlier this year. The additional award covered the extra time the suggestion was implemented and the subsequent extra savings.

Many Ventura Division personnel joined Mr. Wilson in coming up with money-earning suggestions.

One of the busiest suggesters was Ray Gibson. He works on the aft section of the MQM-74A target drone. Mr. Gibson put in six suggestions and earned a total of \$41 in awards for his ideas.

More Winners

S. F. Graham was the recipient of a \$57 check for proposing a new way to test vacuum hoses and Gene Colburn received \$55 for a related idea concerning vacuum manifolds in the autoclave unit.

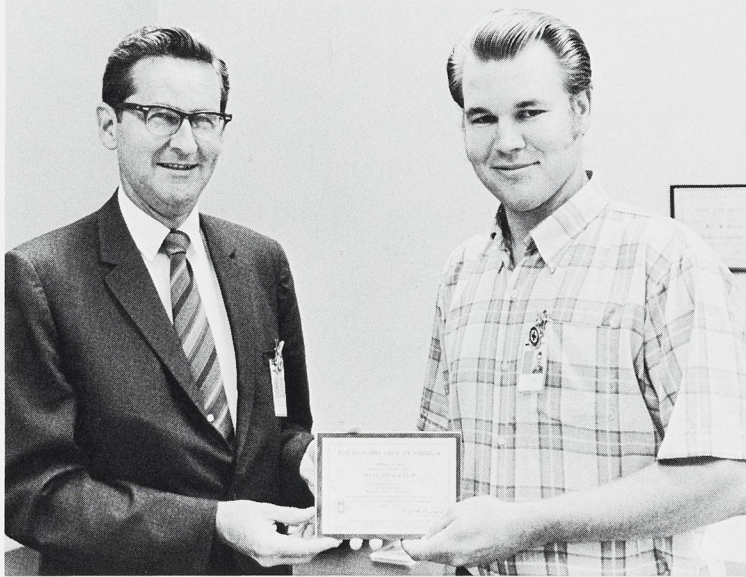
Dan Sullivan and E. O. Pollard each earned awards of \$27 and Donald Ching received \$17 for his suggestion. Matt Newcomb and N. H. Stohlman combined efforts and received \$11 each for two ideas.

Receiving \$10 apiece were L. E. Keener, Ed Kovacevich and A. P. Douglas.

DANCING, ANYONE?

The Recreation Club-sponsored Dancing Club is seeking more participants. If you are interested, call Commissioner Maybelle Trudell, ext. 1370 for further information.

Joins Wise Owl Club



LAUREN PERSONS, left, chairman of the Ventura Division General Safety Committee, inducts Douglas Main of 747 Subassembly into the Wise Owl Club. Mr. Main avoided serious eye injury by wearing safety glasses in a recent mishap and thus qualified for membership.

Ventura Chooses Subsidiary For New Prototype Program

The Ventura Division has initiated a prototype program for the manufacture of a limited number of reinforced plastic parts with a Northrop subsidiary in Holland, Fokker Aircraft Co.

"This is a team effort in international exchange which will hopefully benefit each party," according to Welko E. Gasich, division general manager.

Mr. Gasich noted that 15 countries around the world now purchase Ventura Division target drones for use in anti-aircraft gunnery training.

"By putting a small portion of our manufacturing activity overseas we can compete more effectively in the foreign market," Mr. Gasich said.

"Our industry is becoming more and more competitive, primarily in meeting customer needs. The company which can provide high quality at competitive cost is the one that will stay in business," Mr. Gasich said.

ness," Mr. Gasich said.

The parts will be produced by Avio-Diepen, a division of Fokker which specializes in reinforced plastics. Fokker, in turn, is a partially-owned Northrop subsidiary.

Stands to Reason

"Aerospace companies are going abroad to enhance their sales positions," Mr. Gasich added. "It is only realistic that we at the Ventura Division also consider this avenue. With a Northrop subsidiary our chances of success are increased."

Production at the Ventura Division will not be affected by the prototype program.

TICKETS READY

Tickets for the annual Ventura Division Recreation Club picnic Aug. 29 are now available in the Recreation office, Room E112, from 11 a.m. to 1 p.m. daily.

On The Job...



ESTELLA JOHNSON has been building aerial target drones for the company for more than 19 years. Here she is riveting a wing for the MQM-74A at the Ventura Division.

TAKE VENTURA NURSE'S ADVICE FOR LONG DRIVE ON VACATION

Planning a cross-country motoring trip this summer? Take the advice of Ventura Division nurse Elinor Eckels and plan ahead.

"A cross-country drive with the kids can be such fun if it is properly planned," Mrs. Eckels says. She recommends the following be taken on the trip:

A standard glove compartment first-aid kit containing such items as bandages, first-aid cream, tweezers, scissors, aspirin, band-aids, adhesive tape and drinking cups.

A pillow, a blanket and bottled water.

A small hamper containing instant coffee and hot chocolate, fruit juice, breakfast rolls and fresh fruit provides the essentials for a quick breakfast.

"Be on the road early in the

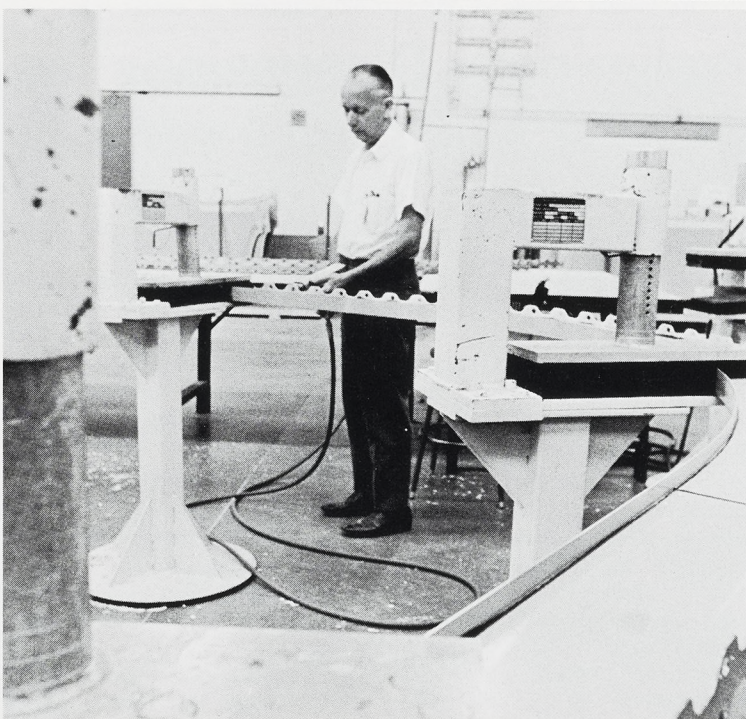
morning. And by early I mean 6 a.m. or earlier," she said. Then plan on stopping for a mid-morning brunch and end your day of driving at about 4:30 p.m.

Everytime you stop walk around a little bit. "The body needs that exercise after being all cramped up," she reminds travelers.

For The Kids

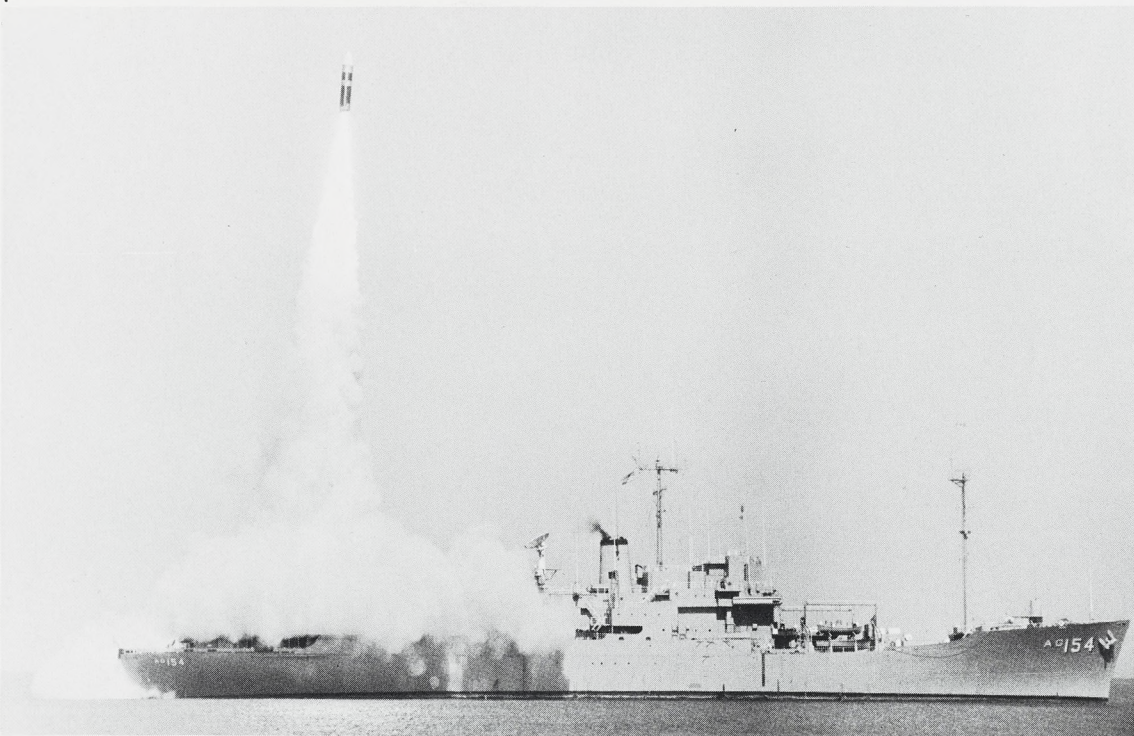
As a special secret to success with children on the open road she says she packs a special little bag full of small gifts for each child. "Coloring books, little games, things which are inexpensive but keep them busy," she said.

"Then when the child begins getting whiney he gets to choose one of the wrapped gifts from his bag—but just one per day. It works wonders."



THIS PICTURE of Ralph Thenhaus is familiar to his co-workers in Boeing 747 Final Assembly. To see some of the other aircraft Mr. Thenhaus builds, turn to page 6.

Poseidon Prepares for '71 Debut



THE USS OBSERVATION ISLAND fires a Poseidon C-3 missile as a prelude to the new fleet ballistic missile joining America's deterrent force in early 1971. Northrop, through its Electro-Mechanical Division, developed automatic checkout equipment for the complex Poseidon missile. The Poseidon is a new generation of fleet ballistic missiles designed to follow the highly successful Polaris. Northrop's DATICO automatic test equipment also supported Polaris. Photo courtesy U.S. Navy.

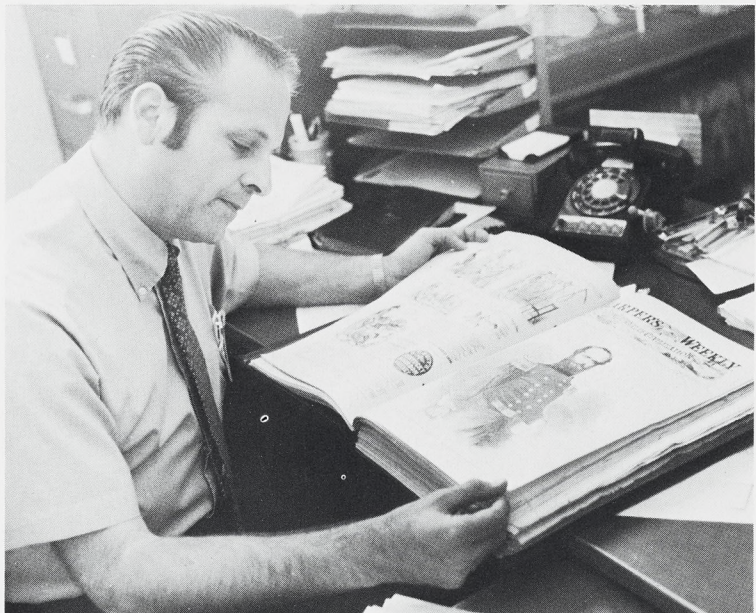
THEY LOOK GOOD BUT

Bargains Are Hundred Years Too Late

"Now here's a real bargain—men's dress shirts at \$18 a dozen. And what about this: gold pin, replated but equal to new for only 25 cents. Or this silver microscope, guaranteed to magnify 500X for only 28 cents."

Unfortunately for Herb Morin, who was reading these ads, he

was just 109 years too late to take advantage of the savings. They were included in issues of **Harper's Weekly** for 1861 and 1862 which he recently bought at a garage sale. **Harper's** was one of America's most famous magazines during and immediately after the Civil War.



HERB MORIN VIEWS GENERAL U. S. GRANT
He bought volume of 109-year-old magazine at garage sale.

Preliminary Discussions Held by Northrop, Learjet

Northrop Corporation and Gates Rubber Company are holding preliminary discussions concerning the possible Northrop purchase of Gates' holdings in Gates Learjet Corporation.

Gates Learjet has headquarters in Wichita, Kan.

The company produces an executive jet aircraft, aviation electronic equipment, plastic parts and stereo products for home and auto use. Gates Learjet has also announced the development of a twin jet helicopter which will reach the executive aircraft market in 1973.

Northrop officials believe that most of Gates Learjet's activities would complement Northrop's activities, particularly in the aircraft field. Gates Learjet, in turn,

feels that Northrop's advanced technology support would be of material benefit.

Northrop has made close studies of the general aviation field over the past two years, and it is that portion of Gates Learjet on which discussions have centered. It is anticipated that other non-aircraft activities of Gates Learjet may be considered for separate disposition.

Stock Breakdown

Gates Rubber owns 63 per cent of the Gates Learjet stock with the balance held by the public.

It is expected that consideration would involve Northrop convertible preferred stock, subordinated promissory notes, and a limited amount of cash.

"And here's an ad that would sell well today with men going back to sideburns and moustaches," he said, pointing to an 1862 advertisement reading: "Do you want luxurious whiskers and moustaches? Use my ungent which will grow hair on the smoothest face. Send for samples, only \$1."

However, old ads are not the only interest in the historic volumes which include every issue of the magazine for 1861 and 1862. Since they cover the first years of the Civil War, they are a treasure trove of history. Flipping through the volumes one sees graphic drawings made by such later famous artists as Winslow Homer depicting battle scenes.

Sea Battles

Among the famous battles shown are the classic sea fight between the **Monitor** and the **Merrimac**, world's first battle between ironclad ships; the Battle of Chickahominy; and a full page showing burning blockade runners in Southern ports.

The stories and illustrations are not all war news by any means. A full page is devoted to the Prince of Wales (later Edward VII) and his betrothed, and a double page spread shows Abraham Lincoln in the midst of a "grand reception" in the White House.

Mr. Morin, who is a buyer for the Electro-Mechanical Division Technical department, makes a hobby of attending garage sales.

"You never know what you will find," he said.

LUAU SUNDAY

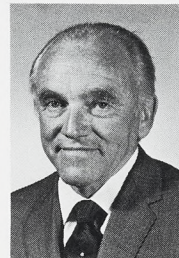
Sunday, July 26, at 2 p.m. a BIG island Luau is being staged at the Latitude 20 Restaurant, Torrance, as a kickoff to NRC's annual yearend Hawaiian tour. It begins at 2 p.m.

The \$4.50 per person tab includes island entertainment and the luau, plus an opportunity to see films and discuss details of the yearend holiday excursion. Contact Personnel Activities for tickets.

Dr. Walter Crandall Heads Northrop Corporate Labs

Dr. Walter E. Crandall has assumed new responsibilities as vice president and manager of the Northrop Corporate Laboratories.

In revealing the new duties of one of Northrop's key scientists, President Thomas V. Jones said that Dr. Crandall will report to Dr. Donald A. Hicks, Northrop vice president—Research and Technology. Dr. Hicks continues to manage the Corporate Research Program and will serve as chairman of the Research Advisory Council, Mr. Jones said.



Dr. Crandall

Dr. Crandall joined Northrop in 1962 and was director of the Science and Technology section at Northrop Ventura until 1965 when he became assistant man-

ager of the Applied Research department of Northrop Nortronics. He has served as NCL's chief scientist since 1967.

A 1940 graduate of Worcester Polytechnic Institute (B.S. in physics), Dr. Crandall held the Victor Royal Fellowship at Stanford in 1940-41. He received his doctorate, in physics, in 1951 from the University of California.

Dr. Crandall worked as a physicist at the Lawrence Radiation Laboratory from 1955 through 1961 and doubled as a consultant to The Boeing Company on missile and space vehicle problems and general nuclear physics problems.

A noted authority in the field of nuclear physics, Dr. Crandall formerly worked at the California Research and Development Company, the University of California Radiation Laboratory, and the U.S. Navy. He is a member of the American Physical Society and Sigma Xi.

Minowitz Leads Area Drive for Peruvian Relief

Len Minowitz, electronics test technician in the Clean Room, Electronics Division, was chairman of a Newhall-Saugus Jaycee committee that collected more than five tons of relief goods for survivors of the recent earthquake in Peru.

Mr. Minowitz, who had been a member of the Jaycees for only two weeks at the time of his appointment as chairman, coordinated the drive to obtain all the basic necessities for the survival of man; canned foods, warm winter clothing and blankets.

"Everybody we contacted, including churches, service organizations and businessmen, was just great," said Mr. Minowitz. "It is amazing what man will do to help others in their time of need."

Mr. Minowitz admitted that he didn't expect to have so much to do in such a short time, but added that "it was the most rewarding thing I have done in my life."

Storms Receives Design Award

Harrison A. Storms has received the 1970 Aircraft Design Award of the American Institute of Aeronautics and Astronautics.

Sponsored by Northrop Corporation, the award consists of a \$500 honorarium. It was presented yesterday by Welko Gasich, Northrop vice president and Ventura Division general manager, at AIAA's 2nd Aircraft Design and Operations Meeting in Los Angeles.

Mr. Storms, vice president of the Aerospace and Systems Office, North American Rockwell, was honored for his "direction of the engineering effort that led to the design and development of the XB-70 aircraft."

Joining North American in 1941 as an aerodynamicist, Mr. Storms advanced to vice president and chief engineer of the Los Angeles Division where he had over-all responsibility for the design of the XB-70, the X-15 rocketship, and the T-39 Sabreliner executive jet aircraft.

Combat Flying Vice President

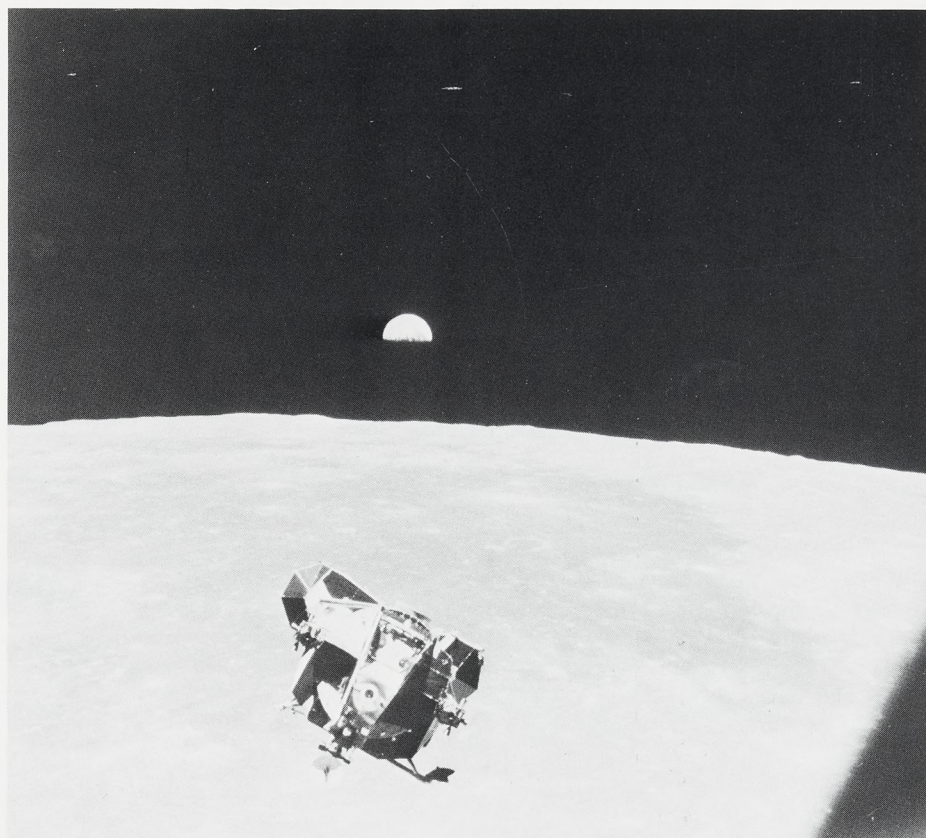


NGUYEN CAO KY, vice president of South Vietnam, prepares for a flight in a Northrop F-5 tactical fighter. Aides have confirmed that the former commander of the Vietnamese Air Force led a flight of F-5 fighters on a combat mission in the Parrot's Beak area on the opening day of the campaign in Cambodia. He also flew subsequent missions in the campaign, the aide confirmed. Vice President Ky is one of Vietnam's most experienced fighter pilots.



Apollo 11 Marks First Anniversary

FAMOUS photo of Astronaut Aldrin, with reflection of Astronaut Armstrong in face mask, was seen around the world. So was the photo of the Lunar Module as it approached rendezvous with the command module above the moon; earth in far background. (NASA Photos)



Special Significance for Northrop Personnel

Mission Apollo—A Man On The Moon marked its first birthday this week. It was July 20, 1969 that U.S. Astronaut Neil Armstrong gingerly set foot on lunar soil and declared, "That's one small step for a man, one giant leap for mankind."

For many Northrop personnel the anniversary week carries special significance. Most Northrop divisions were intimately involved in the historic Apollo Program.

Most dramatic of these roles was that fulfilled by the Ventura Division. The facility in Newbury Park produces the eight-parachute sequential Apollo Earth Landing System. The television coverage of Apollo landings, including the moon mission of Apollo 11, draws special attention to the Ventura-built system.

While the Apollo 11 landing was the 21st consecutive error-free exercise of the landing system, it was the first chance for other Northrop products to display themselves. The Bio-Medical Recording System, produced by the Electronics Division, monitored blood pressure, temperature, respiration and pulse of astronauts Armstrong, Ed Aldrin and Michael Collins continuously after their recovery from the Pacific.

'Home' After The Mission

Another area, which also received worldwide attention in its debut, was the Lunar Receiving Laboratory built and manned by the joint venture of Brown & Root-Northrop. Northrop's role in the \$15-million, 83,000-square-foot facility was under the auspices of the Support Operations department of the Electro-Mechanical Division. The moon mission men spent two weeks in quarantine in the facility at Houston, Tex.

Three Northrop-produced tracking devices were utilized in the Apollo 11 mission as in other missions. The Precision Products

department of the Electronics Division produces accelerometers (precision motion sensing devices); the Electro-Mechanical Division's Astrodynamics section at the Huntsville, Ala., facility offered real-time trajectory analysis support and the Air Force utilized the Northrop-produced Airborne Lightweight Optical Tracking System (ALOTS) for tracking at low earth altitudes.

And The Big Study Continues

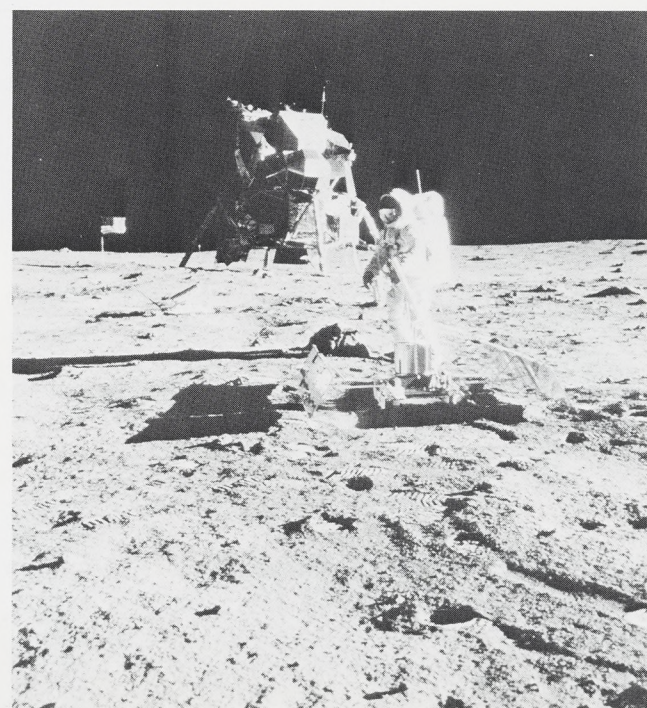
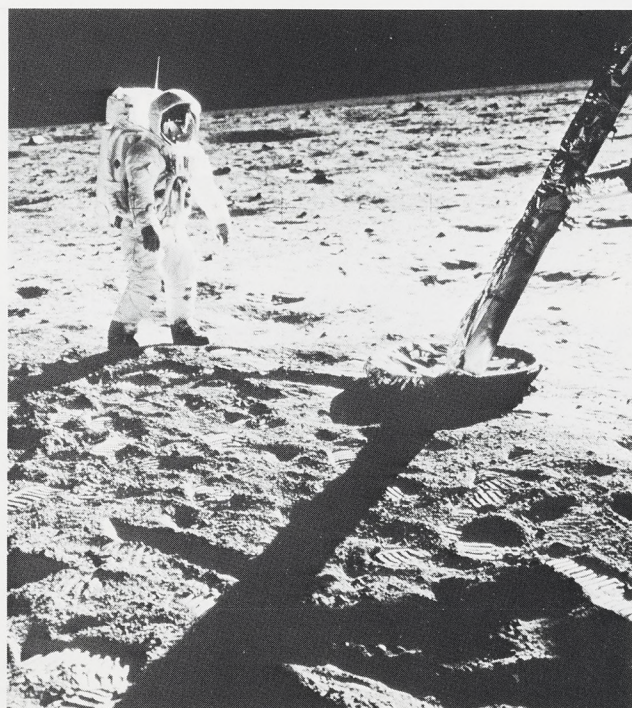
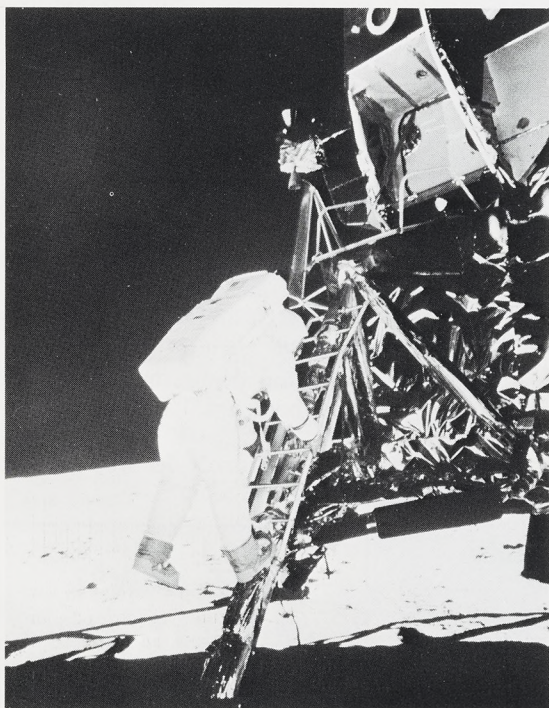
Scientists at the Northrop Corporate Laboratories are now studying samples of lunar soil brought back by the second moon mission, Apollo 12. This study and many others are helping to unravel the secrets of the universe and possibly even provide a better insight into the true origin of life.

The lunar landing, zenith of the Apollo Program, met the national objective of a lunar landing and safe return in the 1960's. Cost of the moon-landing program came in close to the original budget. First estimates in 1961 predicted an expenditure of from \$20 to \$40 billion. Actual cost of putting a man on the moon was \$21.35 billion, including capital assets of \$2.8 billion.

Northrop's participation in the program is typical. Prime contractor North American Rockwell utilizes 7,000 suppliers in 48 states for more than \$1.4 billion worth of purchase orders for the NASA project.

The precision need for mission success is always time consuming. The Apollo 11 spacecraft command module, for example, took 2½ years to build. It is fitted with more than 2 million individual functional parts (not including wiring or structural components).

But time and dedication continue to pave the way to success. Northrop personnel share in the nation's pride this week.



Astronaut Edwin (Buzz) Aldrin descends from Lunar Module, gets his footing on lunar soil and takes soil samples. Astronaut Neil Armstrong made photographs.

Tests Prove Boeing 747 Wake Destroys Itself

The Boeing 747's wake has been studied by federal and Boeing authorities for the past year to determine how closely another craft can follow the jumbo jet without being tossed about by the turbulent air.

Studies by Boeing, the Federal Aviation Administration and the National Aeronautics and Space Administration have resulted in removing a safety restriction requiring smaller planes to follow no closer than 10 miles and at least 2,000 feet below.

While the wake turbulence created by the aircraft is significant, exhaustive tests have shown the FAA trailing rule was too strict. The newly-approved FAA rule reduces the trailing margin by half.

The wake left by an aircraft is in the form of a vortex — a whirlwind — one trailing from each wing. The left wing vortex is a clockwise-rotating mass of air. The right wing vortex rotates counterclockwise.

Testing the effects of the wake was awkward at first because trailing pilots couldn't see it. Installation of smoke generators,

specifically for the tests, made it easier.

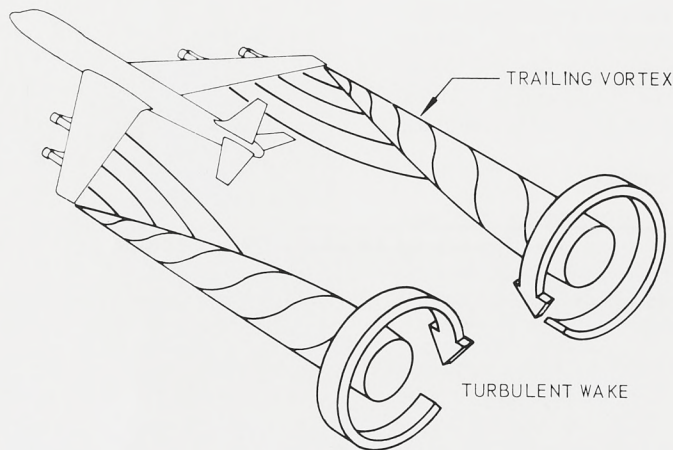
Unlike a boat's wake in water, the airplane's wake does not spread out; it stays within three-fourths of the airplane's wingspan. It was found that within five miles behind the plane the two vortices come together and, by whirling in opposite directions, destroy each other.

Clearing The Way

When the wake is within 50 feet of the ground the vortices spread apart, in effect clearing the flight path for a following airplane. Crosswind effect was also studied.

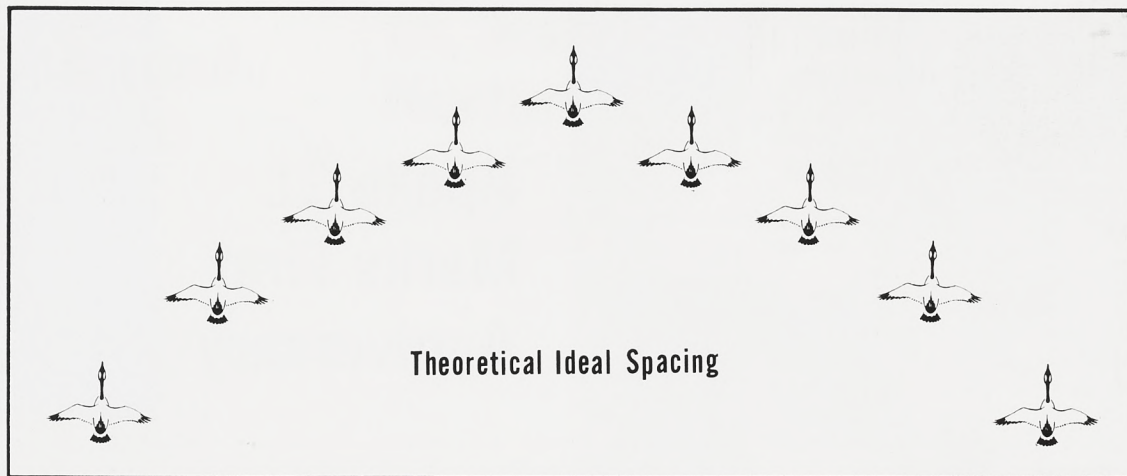
And many obvious things were learned. For example, the larger the trailing plane the less impact it receives from the 747 wake. A jet plane grossing 300,000 pounds or more may follow another jet as close as three miles with an altitude separation of 1,000 feet. A smaller craft must stay back five miles, again with an altitude separation of 1,000 feet.

Engineers have learned many things about the "wind" created by the jumbo jet. In essence, they have seen the wind and worked with it for improved air safety.



CREATING THEIR OWN WHIRLWINDS

Wings of 747 send vortices, turbulent air masses, trailing behind.



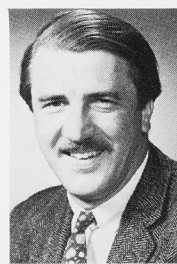
Theoretical Ideal Spacing

A HELPING WING

Why Large Birds Fly in V Formation

A Northrop aerodynamic specialist has co-authored a paper which concludes that large migratory birds may increase their flight range as much as 71 per cent by flying in a V formation.

Dr. Peter B.S. Lissaman, director of the Continuum Mechanics Laboratory for the Northrop Corporate Laboratories, did the paper with graduate student Carl A. Shollenberger while Dr. Lissaman



Dr. Lissaman

was a professor at Cal Tech.

The Science magazine article drew widespread attention and was the focus of several news stories, including an article in the New York Times.

"I've written many technical papers but this one has drawn the most response," Dr. Lissaman said. He has had over 50 requests for reprints or to elaborate on the thesis, he said. "To my surprise there have been stories in many of the nation's newspapers," he added.

The reason for the interest lies in the conclusions of the work. The optimum spacing of the

birds, Dr. Lissaman and his co-author say, depends upon the angle of the V. If the angle is proper the birds enjoy a normal workload.

However, if one gets ahead of his proper position it immediately realizes it is working harder and falls back into proper spacing alignment. If it lags behind it does less work than the others.

While the report admits its conclusions are based strictly on aerodynamic principles and not from actual bird watching, Dr. Lissaman and Mr. Shollenberger feel that it is possible that "social pressure" will bring the freeloaders behind the vee line back into a position where they pull their own weight.

Extending Range

The New York Times report by Science Editor Walter Sullivan states the basic premise:

"Dr. Lissaman said the updraft enabled each bird to fly forward more easily, much as a hawk or glider pilot takes advantage of updrafts. For birds in such an updraft, the most efficient flight mode is one that reduces speed while extending range.

"Thus, according to the calculations, a flight of 25 birds that, by formation flying, increases its range 71 per cent per unit of expended energy, will also reduce its speed 24 per cent. Dr. Lissaman pointed out that birds leaving a V formation typically speed up and those joining the formation slow down.

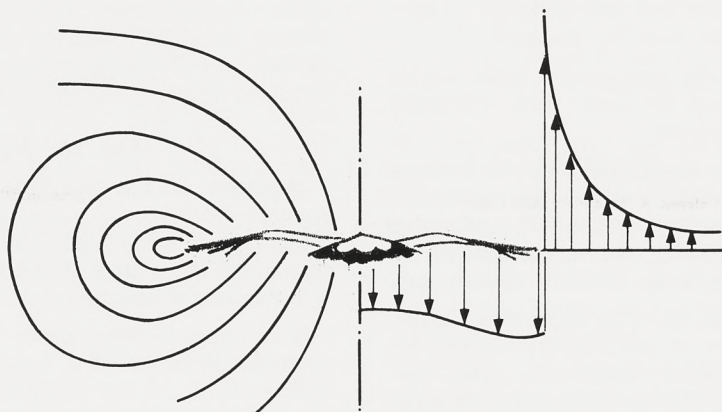
"However," he said, "it could be argued that a departing bird increases its speed merely to scout ahead, or it could be contended that a joining bird flies faster to overtake the formation."

Working Together

Does that mean the lead bird works harder? "Not necessarily," Dr. Lissaman answers. In a V formation the updraft from birds on either flank of the lead bird extends far enough forward to help the leader as well, he said.

To stay in perfect aerodynamic balance the outermost birds would have to be slightly behind the mean vee line of other birds to even the load. The scientists' diagram of an ideal formation reflects this feature.

As for flying roughly on the same horizontal plane, Dr. Lissaman says that's the optimum way. And that's the way they do it in nature, too.



A BIRD'S AERODYNAMICS

Vortex of bird's wing results in up and down drafts created by flap.

WE ASKED THEM—How Are You Doing With Your New Year's Resolutions?



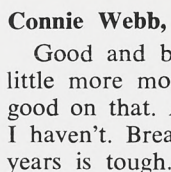
Phil Morgan, Supply Support specialist, Electro-Mechanical:

All I did was promise myself that I would paint the house this year. I didn't have time this spring and it is too hot this summer, but I don't feel that I've broken my resolution yet for there are still some months to go.



Letha Ladd, statistical clerk, Electro-Mechanical:

I can honestly say that I haven't broken a single resolution—but that is only because I didn't make any.



Connie Webb, warehouseman, Aircraft:

Good and bad. I resolved to try to save a little more money this year. I'm doing pretty good on that. And I resolved to quit smoking. I haven't. Breaking a habit you've had for 22 years is tough. Maybe next year.



Jim Frazer, senior tool and operation planner, Aircraft:

Wonderful. Didn't make a one this year. Eleven years ago I resolved to quit smoking and I haven't touched one since. I'm proud of that. Maybe I should make a mid-year resolution to try to decide once and for all what I will do when I end a 29-year Northrop career. I'll be 65 this year.



Diane Scheidler, plastics laminator, Ventura:

I'm doing fine because I didn't make any. I've made them before but this time I didn't even try. I think they're sort of going out of style.



Duncan Thomas, supervisor, Ventura:

Real well, thank you. I resolved to quit smoking on New Year's Day—after all the football games—and I haven't had a cigarette since. I'd say I was smoking two packs a day until then.



Jean Nelson, coordinator, Electronics:

I guess since I haven't lost any weight, and I've been to Las Vegas a few times already this year, I haven't done too well on my resolutions. Oh, well, there is always 1971.

Johnnie Smith, electronic technician, Electronics:

I've kept about half of my resolutions. They're not hard to keep, it's just that they're easy to forget.



IS IT NEWS?
CALL EXT. 4273
HAWTHORNE

Classified

Classified ad service is provided free of charge to all Northrop personnel. Ads for agencies, commercial enterprises and private businesses are not accepted. The Northrop News reserves the right to edit or omit ads. Obtain ad form C67 from organization clerk and mail ad to Northrop News, 170, zone 62. Ads are limited to one item and one ad per person each issue. Deadline is noon Wednesday, one week before publication.

Automobiles For Sale	
Station Wagon, 1964 Chevy II, 4-dr., eng. & trans. o/hauled, auto., fact. air, \$795. 213-378-8112.	A
Ford, 1963 Falcon, 4-dr., auto. trans., \$240. 213-532-1439.	A
Pickup Truck, 1959 F-100 Ford, auto., AM-FM, a/c, & Shell camper w/boat rack, \$700. 213-829-1442.	A
Austin Healey, 1964 3000 MK III, o.d., r/h, new top, \$1,200. 213-456-3019.	A
Mustang, 1965, 6 cyl., auto. trans., \$1,000. 213-675-5829.	A
Chevy II, 1963 Nova, auto. trans., r/h, \$800. 213-674-4192.	A
Corvaire, 1960 Monza, 2-dr. h/top, \$125. 213-830-7489.	A
Dune Buggy, VW pwr'd., f/glass body, late model parts, many off-road features, \$1,175. 213-676-9574.	A
T-Bird, 1960, full power, a/c, \$225. 213-676-5101.	A
Lincoln, 1965 Continental, new radial tires, \$1,600. 714-892-0460.	A
Station Wagon, 1966 Chevrolet Bel-Air, 29,000 orig. mi., \$1,250. 213-776-1928.	A
Chevelle, 1965 Super Sport, \$1,200. 213-676-1085.	A
Pontiac, 1964 Bonneville, 4-dr. h/top, \$995. 213-547-2716.	A
Cadillac, 1965 Coupe de Ville, a/c, tilt/tele. whl., all power, \$2,150. 213-377-6458.	A
Lincoln, 1964 Continental convt., completely restored & repainted, a/c, AM-FM, \$1,200. 213-833-4789.	A
MGB, 1964, radio, wire whls., service manuals, tonneau covers, \$990. 213-439-9110.	A
Oldsmobile, 1956 88, 324 V-8, 4-spd., auto. trans., \$200. 714-635-3315.	A
Chevrolet, 1962 Impala, 283 V-8, auto., \$225. 213-675-8763.	A
Volkswagen, 1970, \$1,849. 213-379-4437.	A
Continental, 1964, \$875; Cadillac, 1966 de Ville convt., \$1,850; Oldsmobile, 1966 Cutlass, \$1,000; T-Bird, 1966, \$995; all minimum bids. Credit Union ext. 1117.	A
Dune Buggy, 1969 VW parts, f/glass body, many new off-road features, \$1,100. 213-396-6739.	A
Dodge, 1964 4-dr. sedan, 6-cyl., auto. trans., r/h, \$550. 714-897-0648.	A
Chevelle, 1968 Super Sport, 4-spd., mags, 31,000 mi., \$1,800.80. 213-644-6090.	A
Austin Healey, 1960 3000, \$550. 714-892-1401.	A
Pickup, 1962 Dodge, V-8, auto., \$725. 213-329-6553. 213-325-3908.	A
Dune Buggy, Ford V-8, dual whls., tow bar, roll bar, \$175. 213-582-3844.	A
Van, 1969 Chevrolet 108, hvy. duty, 14,000 ml., \$2,250. 805-495-6781.	A
Pickup, 1934 Ford, 292 Ford eng., short bed, \$125. 213-320-7574.	A
Ford, 1965 wrap-around, not running, \$100. 213-860-5618.	A
Renault, 1959 Dauphine, r/h, 12-v., many extra parts separate, \$120. 213-370-2876.	A
Buick, 1965 Skylark, 2-dr. h/top, r/h, p/b, p/s, \$800. 213-320-3583.	A
Pontiac, 1965 GTO, 396 w/Tri-Power, 4-spd., positraction, \$1,500. 213-324-7537, 213-795-5680.	A
Datsun, 1967, model 1600, removable h/top, \$1,550. 213-372-8078.	A
Station Wagon, 1958 Dodge, 2-dr., 80,000 actual mi., \$300. 213-320-0255.	A
Volkswagen, 1964, radio, \$510. 213-833-6045.	A
Chevrolet, 1965 Impala, 4-dr., 283 cu. in., a/c, p/s, \$700. 213-676-5873.	A
Station Wagon, 1963 Ford, \$650. 714-892-6100.	A
Amphicat, 6-whl. dr., w/trailer, \$1,200. 714-962-0568.	A
Household Items For Sale	
Table, oblong w/dropleaf sides, 2 side chairs & captain's chair, unfinished, \$25. 213-545-5100.	B
Refrigerator, Admiral, coppertone, bottom freezer, 3 yrs. old, 32" wide, frost-free, \$95. 213-635-7942.	B
Sofa, 6', brown fabric, \$20. 213-834-0586.	B
Crib, \$15. 213-374-5133.	B
Couch, brown w/maple trim, 5' long, \$40. 714-774-4853.	B
Home Bar, footrail, shelves, completely padded, red-orange & black, \$50. 213-542-4226.	B
Dinette Set, chrome, 7-pc., \$40. 714-535-1694.	B
Mattresses, extra firm, twin, box springs on frames, \$90. 213-870-8326.	B
Desk, glass-covered w/matching chair, blond, \$20. 213-437-5730.	B
Freezer, General Electric, 8 cu. ft., chest-type, \$50. 213-439-6432.	B

Household Items For Sale	
Dining Room Set, table, 8 chairs, china cabinet & commode, plate glass cover, \$125. 213-277-2926.	B
Easy Chair, recliner, black vinyl, thunderbird styling, \$25. 213-645-3986.	B
Miscellaneous For Sale	
Diamond Ring, 1/3 carat, \$190. 714-879-9945.	B
Motorcycle, 1967 Honda, CL-90 Scrambler, motor rebilt., \$225. 213-324-7257.	C
Wetsuit, Body Glove, full length diamond cut legs, \$25. 213-375-8993.	C
Engine, 1961 Chev. 283, complete, \$150. 213-320-8890.	C
Cabin Cruiser, 20' Crestliner, f/glass, Ford Interceptor sterndrive eng., sleeps 2 1/2, extras, American tilt trailer, \$2,950. 213-888-8890.	C
Wedding Dress, ivory bridal satin & hand-beaded lace, w/veil, size 10-12, \$50. 213-823-8646.	C
Modelers, r/c, Kraft KPS4, complete, dual sticks, 72.4 mch. 3 ea. 59 servos, 1 ea. S10, used 2 mos., \$250. 213-675-9073.	C
Wheels & tires, Super Sport Grager w/adapters, set of 4, \$100. 213-375-0061.	C
Baby Walker, round hula cpe., \$5. 213-631-4072.	C
Pool Slide, 10' fiberglass, \$100. 714-533-1429.	C
Camper, cartop-type, incl. 8'x8' floor tent, bltin folding table, & many other camping access., \$150. 213-671-8560.	C
Utility Boat, 17'11" Rayson Craft w/trailer, 427 high-perform. Ford, adjust. plate, \$3,800. 213-534-2189.	C
Oil Paintings & frames, various European & American artists, \$18-\$74. 213-378-0667.	C
Acreage, 2 5-acre parcels, in Apple Valley, on Hwy. 18, \$500 dn., 6.5% int., \$5,500. 213-327-3616.	C
Air Conditioner, 6,000 b.t.u. Philco, 3-spd. fan, variable temp. control, \$95. 213-343-7745.	C
Camper Trailer, 1967 Heilite Viking, complete w/dble. beds, \$400. 213-377-6271, 213-375-6971.	C
Pups, German shepherd, \$10 ea. 213-679-5177.	C
Motorcycle, 1966 Yamaha, 80 cc Trailmaster, 4,000 mi., \$150. 714-526-5358.	C
Rifle, Winchester 30-06 model 670, \$80. 213-676-0938.	C
Welding Torch, Craftsman, 3 welding tips, 2 cutting tips, gauges, hose, & lighter, \$30. 213-371-2091.	C
Acreage, 5 acres, Antelope Valley, east of new airport, utils., rds., \$400 dn. or \$83 dn. on land contract, \$8,250. 213-378-1026.	C
Sailboat, 22', wood plank hull, inbd. eng., sleeps 3, \$1,495. 213-831-3894.	C
Relaxacisor, \$50. 213-674-6074.	C
Rifle Scope, Tasco, 3X-9X variable, incl. mounts, \$30. 213-671-4902.	C
Auto Stereo, Muntz, 4-track, w/tapes, \$40. 213-328-7887.	C
Pups, Basenji, barkless, AKC, \$75. 714-528-1919.	C
Stroller, \$9. 213-323-4729.	C
Wheelchair, \$75. 213-675-2333.	C
Mini Bike, Rupp, 3 1/2 h.p., hand horseshoe brakes, \$75. 213-542-2638.	C
Clairel Kindness 20, complete w/20 rollers, never used, \$10. 213-324-6043.	C
Holster, left-hand w/tie down, hand tooled, fits most revolvers, \$15. 213-370-8119.	C
Lawnmower, Craftsman Silent, hand-type, w/catcher, adj. height, used twice, \$27.50. 213-675-0788.	C
Mags, 4 Ansen Sprint & positraction tires, \$195. 213-671-7875.	C
Bicycle, boy's 20" Sting Ray, 3-spd., \$20. 213-397-3504.	C
Surfboard, Rick, size 8'6", \$30. 213-320-3430.	C
Pup, Beagle, 12 wks. old, female, AKC reg., tri-color, dog house incl., \$40. 213-542-3697.	C
Mini Bike, 1969 Taco, \$75. 213-596-1035.	C
Fish Feeder, auto., \$5. 213-372-1632.	C
Camera, Konica C35 auto., 35mm, \$60. 714-962-1143.	C
Amplifier, mono Harman Kardon Allegro w/response curves, \$20. Box 1401.	C
Clothing, coats, ladies' black Persian lamb, \$75; black imported wool w/beaver collar & pockets, \$60; 2 suits, light wool, men's navy blue, \$25 ea. & overcoat, brown imported wool, sizes 40 reg., \$25. 213-472-6430.	C
Exercycle, Sears, \$25. 213-776-0393.	C
Pool Table, prof. tavern size, slate top, drop pockets, 800 lbs., \$450. 213-374-6727.	C
Own-Your Own Apt, all elec., 2-bdrm., 2 baths, patio, pool, party rm., hobby shop, enc. 2-car gar., adults, \$24,000. 213-327-8047.	C
Surfboard, 7' 1" Rick, \$60. Box 1402.	C
Mini Bike, Nova, 4 h.p., full susp., mag whls., \$135. 213-326-6214.	C
Piano, upright, grey vinyl, mirror shelf, \$150. 213-375-5385.	C
Gate, Nu-Line pressure-type, fits door to keep pets or toddlers confined, \$4.50. Box 1403.	C
Motorcycle, 1967 Honda 90 CL, \$200. 213-324-1719.	C
House, 3-bdrm., fam. rm., 2 baths, cpts., dps, f/place, bltins, refrig. a/c, f/a heat, 15x35 heated pool, assume 5 1/4% G.I. loan, \$37,500. 213-348-4874.	C
Boat Motor, Scott, 40 h.p., elec. start., & 14' Wizzard boat, \$200. 213-831-4527.	C

LAND OF MANY MOODS

Ventura Artist Favors Desert Scenes

Combining the precision of mathematics with the creative art of painting is Dr. Herman von Guerard, a Ventura Division mathematician.

Dr. von Guerard has created more than 100 paintings in the past 15 years, most of them made in the colorful and beautiful rocky deserts of Utah, Arizona and Nevada.

One of his favorite painting areas is the Arches National Monument near Moab, Utah. Dr. von Guerard has visited the area many times; each time he returns with a new variation of the age-old rock models.

He has painted the arches, hills, rivers and boulders. A painting done in casein of the boulders known as "The Gossips," because it resembles the silhouettes of three gossipy old women, best captures the mood of the area.

"I feel a painting must go beyond the limits of the color photograph," Dr. von Guerard said. "It must convey a special interpretation of the object to the

viewer."

The desert, he feels, offers a broad spectrum of these moods—desolation, heat, despair, and even foreboding with the gray of a spring thundershower.

Specializing in landscapes with what he terms an "expression-

istic" style, Dr. von Guerard works with casein, pastel and water colors. He is physically allergic to the traditional oil paint.

His vacation trips have yielded other fruits, too. Many Navajo-made rugs and reed bowls can be found in his home.



MEET VON GUERARD'S 'THE GOSSIPS'
Artist feels these boulders resemble chatting women.

EDITOR'S NOTEBOOK

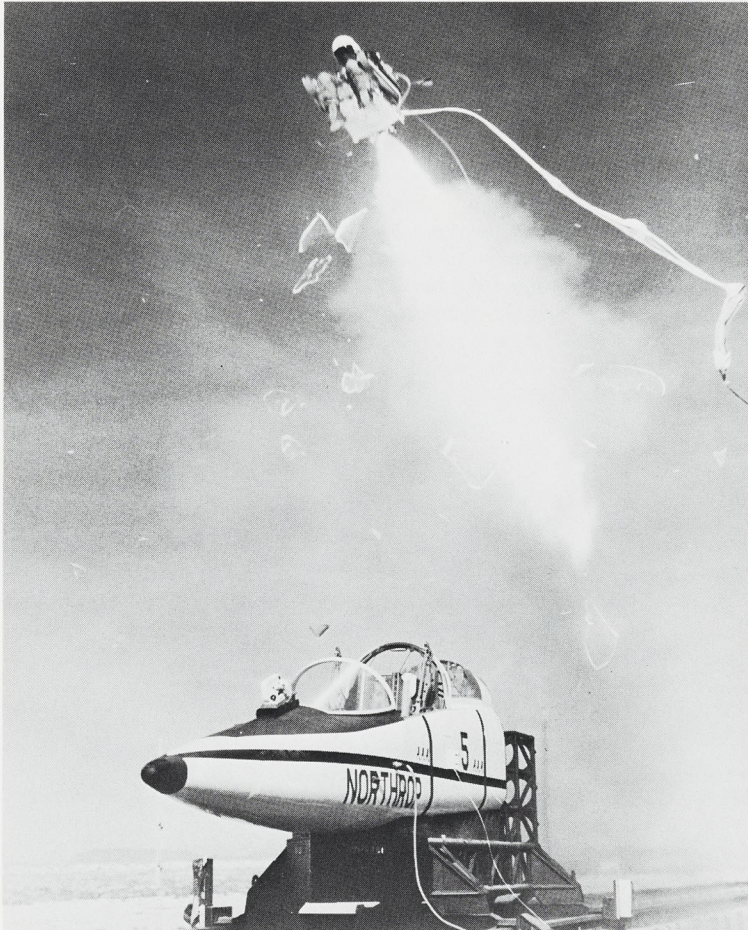
Here's the latest add to our list of Northrop employees and their families who have selected the Boeing 747 superjet for their personal travel. Ruth Weiss of the Northrop Ventura Library reports she and her husband were on a pleasure trip to Japan. Enroute home they stopped off in Hawaii just so they could switch to a Pan Am 747 for the eastward leg of the journey home. Britt Fields of the Aircraft Division was aboard a Pan Am 747 June 27 going to Japan and Far Eastern points. Morris Schechter, Ventura Division, and eight members of his family had reservations on a smaller aircraft but changed to American Airlines 747 for a trip to Chicago next month. Any others?

The mails this week bring notice of two important events occurring in the life of a former Aircraft Division employee who is remembered with fondness by many. The Reverend John Chambers served the division as an employee counselor, was instrumental in the formation and operation of the Northrop Retirement Club, the NRC Bible Club and many other activities.

Reverend Chambers is leaving his post as interim pastor of the Westwood Presbyterian Church to become pastor of the Grace Presbyterian Church in Vista. He will be installed Sunday, Aug. 3, at 3 p.m. And this fall the Superior Publishing Company of Seattle is releasing his book titled "Arctic Bush Mission, The Experiences of a Missionary Bush Pilot in the Far North." It covers his six years in Barrow, Alaska, as a missionary. The book is about half photographs and half narrative covering his mission and the life of the Eskimo people. It contains 215 photographs and sells for \$12.95.

Few events, if any, in commercial transportation history can compare with the impact made by the Boeing 747 on international air routes. Each day brings something new in news about the 747. And with this general interest comes questions, thousands of them. Pan American Airways, the first commercial carrier to fly the 747 and the owner of the largest number of superjets, has come up with an unusual gimmick to answer questions.

Pan Am has selected four pert stewardesses, dubbed "The Going Great Girls," who are on a special tour of the nation just to answer questions about the 747. They appear in person on television shows, special events and the like. And they are always available for interviews. The girls pack along on the travels two specially-mounted 747 passenger seats, photographs, films and many visual aid items. They answer questions—in eight different languages—on everything from 747 food service, maintenance, noise abatement and training to on-board entertainment.



DUMMY GETS A SHORT RIDE
As engineers test new drogue parachute firing from sled.

Ventura-Built T-38 Seat Gets A Tough Going-Over

Special tests have been completed by Northrop and U.S. Air Force engineers on a modification of the Ventura Division-produced T-38 supersonic jet trainer ejection seat.

Tests on the Northrop T-38 aircraft escape systems were part of a continuing effort to improve the performance of all U.S. Air Force aircraft escape systems.

New Drogue Parachute

Aircraft Division engineers modified the headrest of the Ventura Division seat to install a new drogue parachute. The new system is designed for faster personnel parachute deployment in the highly reliable Northrop system.

Conducted by the Air Force

Systems Command, the test program was carried out on the High Speed Test Track at Holloman AFB, N.M.

The sled vehicle used for these tests was a veteran of early T-38 escape system testing at Edwards AFB. It was modified by Northrop craftsmen for use at Holloman.

Engineers at the Aircraft Division are now drafting a final report for Air Force evaluation. If the report's recommendations are adopted, the result would be a modification in seat production by Ventura personnel. Detail in the production modification will not be available, if at all, until later this year.

Bridge Clubbers Fare Well in L.A. 'Bridge Week' Competition

Ventura Division bridge clubbers finished with the top five of the competition recently in special Bridge Week matches with other commercial - industrial teams and pairs at the Ambassador Hotel in Los Angeles.

"We probably came in around third when the pairs and team results are averaged out," explained Bridge Club President Terry Chin. Sixteen teams and 66 pairs participated in the American Contract Bridge League-sanctioned championship events.

Competing for Ventura were eight Venturans. The pair of Mr. Chin and Bob Calhoon finished second in their section, as did the

duo of Cal Peterson and Betty Reinisch.

Mr. Chin, Mr. Calhoon, Mrs. Reinisch and Mr. Peterson finished fourth in the team competition with the foursome of Tom Riley, Paul Ewing, Carlene Pierce and Tanet Palmer winding up in a three-way tie for fifth.

"This is the best over-all showing for Ventura in recent years of Bridge Week play," commented Mr. Calhoon later.

He said Bridge Week involves over 10,000 four-man tables of contract bridge play and the largest bridge event around the world. This year's Bridge Week was July 3 through July 12.

U.S. NAVY OBSERVES 10TH ANNIVERSARY OF FIRST POLARIS MISSILE FIRING

The U.S. Navy observed the tenth anniversary July 20 of the first submerged firing of the Polaris missile. The initial firing took place on a cruise off the Atlantic coast on July 20, 1960.

"With these launches a revolutionary concept in seaborne weaponry became a reality," the Navy announcement said. "For the first time the stealth and endurance of the nuclear submarine were mated with the defensive capability of the ballistic missile."

Northrop joined the Polaris program in 1959 when the Electro - Mechanical Division contracted to produce automatic checkout system for the Polaris missile. Although the last system contracted for on the nuclear submarine, it was the first major system delivered and accepted.

At the present time Northrop is supporting the remaining Polaris submarines and delivering equipment and spares and services for the newer Poseidon program.

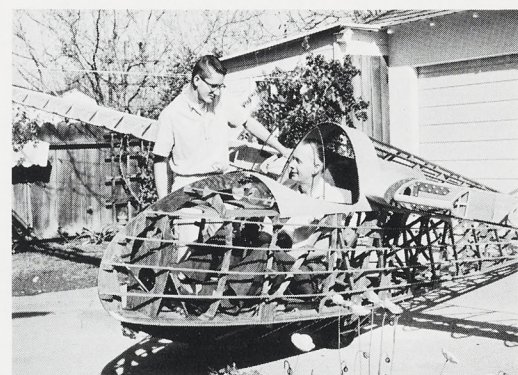
Ventura's Thenhaus Keeps Busy Building Airplanes



WAY BACK in 1934 young Ralph Thenhaus, on the left, and his brother, Carl, became interested in an Air King craft at the Quincy (Ill.) Airport where they grew up.



VENTURA ARTIST Jack Calder at the wheel of a Thenhaus-built Heath Parasol. Mr. Calder says Mr. Thenhaus is a "true craftsman."



WITH SON John in his Van Nuys home a few years ago, Mr. Thenhaus tries out rudimentary controls. He sells planes when finished.



TWO-PLACE Skyhopper received considerable attention among amateur builders. Mr. Thenhaus has been featured in several trade magazines for his skill in homebuilding aircraft.

So Far He Has Built 8 of Them



LOOKING LIKE the proud builder that he is, quiet Mr. Thenhaus poses at the Van Nuys Airport with the third craft he built, a miniplane which carried just one person.

NORTHROP NEWS

VENTURA DIVISION EDITION

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IN APPROPRIATE ROBES

From left, Mr. Carroll, Mr. Worth, Mr. Burns, Mr. Maurer; seated, Mr. Downey.

Five Complete Special Master's Degree Course

Five Ventura Division men have completed a unique program with the Pepperdine College School of Business and will be awarded master's degrees in business administration at graduation ceremonies Friday in Los Angeles.

Receiving their degrees will be M.A. Maurer, vice president, Production Operations; L.B. Carroll, Jr., 747 Program manager; Steve Downey, program administrator, Contracts; Bob Worth, Production project chief; and Michael Burns, manager, Management Information Systems.

The five were specially screened and selected by Northrop and Pepperdine as "masters of business" because of their experience and expertise at the working level. But the 12-month course was plenty of hard work.

Classes of 4-6 hours in length began in September and met weekly in the Administration Building's first-floor conference room at Ventura. Extensive read-

ing, study and research was included in the at-home portion of the program.

The program had a separate instructor in Behavioral Sciences, Quantitative Analysis and Organizational Theory for each of three separate trimesters. Special instructors were also brought in to supplement the study.

Each participant was required to prepare and submit a comprehensive research project paper at the conclusion of the program. These papers will ultimately be available at the Ventura Division technical library.

"This is the first time Pepperdine implemented such a program so far away from its (Los Angeles) campus," explained Frank E. Lund of the Industrial Relations office. "And from what we're told the program was a fine success."

Other industries in the Conejo and Pleasant Valleys also contributed participants as Ventura provided "classroom" facilities.

Organizational Changes Streamline Management

Several organizational realignments which streamline the top management of the Ventura Division and place it in line with other elements of the Northrop Corporation are now taking place.

As announced by Welko E. Gasich, Division general manager, the new organization of five line departments will "provide shorter lines of communication and reduce overhead operating costs."

In his announcement, Mr. Gasich noted that "In today's tight business environment it is recognized that organizations must be combined, including limited downgrading, to meet the com-

petitive aspects of the marketplace."

The reorganization creates two new top-line operating departments while consolidating the three others into more tightly-operated functions. The titles of director, chief and supervisor are eliminated.

The five departments and their heads, each of whom will report to Mr. Gasich, are:

Financial Management department, Walter F. Sternadel, vice president; Production Operations department, M.A. Maurer, vice president; Engineering department, Don Warner, manager; Support Operations department,

Thousand Oaks Dental Center Will Serve Ventura Personnel

Ventura Division personnel will be able to begin taking advantage of the new Northrop Dental Plan beginning next week at a Dental Center in Thousand Oaks.

Personnel participating in Plan II may begin making appoint-

ments now for dental work after Aug. 11, according to Frank E. Lund, manager of Personnel.

Appointment time slots will be Tuesdays and Thursdays from 10 a.m. to 7 p.m. or Wednesdays and Fridays from 2 to 7 p.m. Offices are at 240 E. Lombard

St., two blocks east of Moorpark Rd. and south of Thousand Oaks Blvd.

The telephone number for an appointment is 497-1697. The other Dental Center which will serve many Ventura personnel is in Sherman Oaks at 4835 Van Nuys Blvd. The telephone number there is 788-0937.

Follows Survey

Selection of a Dental Center for Thousand Oaks came after a survey of Plan II participants. They were asked to express their wishes for a center in Thousand Oaks and Camarillo. The results were: Thousand Oaks, 341; Camarillo, 167.

Because of the sufficient number of Ventura personnel residing in the Camarillo-Oxnard area a Dental Center may open at a later date in that location. However, in the meantime, personnel from that area should utilize the Thousand Oaks center.

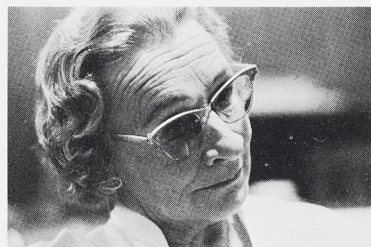
Further information may be obtained from Personnel representatives.

AFTER 15 YEARS

Irene Seaman Retires

If things don't seem quite as shiny today, there's a reason. The Ventura Division's leading janitorial lady has stepped into early retirement.

Irene Seaman ended 15 years and eight months of service on Friday, July 24.



Mrs. Seaman

"I've enjoyed working here very much," said the grandmother of 14. "I've made so many true friends I can't count them all."

The native of Ancram Lead

Hallicrafters Gets Police Radio Contract

Northrop's Hallicrafters Co. has received a contract from the City of Cleveland, Ohio, for approximately \$750,000 to supply Model HC-400 FM 2-way portable radios for the Cleveland Police Department's new communications system.

The new HC-400 is the smallest, lightest, highest "performance to size" FM 2-way radio, according to Hallicrafters. It utilizes integrated circuits and the newest "state of the art" discrete components.

The radios are an advanced communications design developed by Hallicrafters engineers. Each unit is battery operated and pro-



READY FOR FIRST launch from a ship is the Ventura-produced MQM-74A target drone on the main deck of the aircraft carrier U.S.S. Okinawa. Surface to air missiles were later fired at the airborne target.

W.A. (Wes) Steyer, manager; and Product Development department, George Grogan, vice president.

Mr. Sternadel's department combines Finance and Contract Management. Reporting to Mr. Sternadel will be:

Jewell S. Plummer, manager, Contract Management; John D. C. Roach, manager, Business Systems and Contract Accounting; L.E. (Les) Hudson, manager, General Accounting, Collections and Disbursements.

Reporting to Mr. Maurer will be John Evans, manager, Materiel and Production Control; Lauren

Persons, manager, Manufacturing Engineering; W.W. (Bill) Kearney, manager, Production; and Larry Carroll, 747 Program manager. Mr. Carroll formerly reported to Mr. Gasich.

Engineering department changes have, for the most part, already taken place. However, four men will have new functions in the realignment.

Dr. Robert Johnson and Gary Bucsis will report to Mr. Warner in a staff capacity responsible for Research and Administration, respectively. Roland Lemm and A.C. (Art) Jackson will be on the B-52 decoy staff reporting to Mr. Warner.

Reporting to Mr. Steyer in the new Support Operations department will be George Johnson, manager, Quality Assurance; Rex Fairless, manager, Industrial Relations and Clark DeSpain, manager, Facilities and Property. Robert Cole will report to Mr. Steyer in a staff capacity responsible for Master Scheduling.

The reorganized Product Development department combines the former Marketing and Product Development organizations. Reporting to Mr. Grogan will be J.R. Jacobsen, manager, Program Planning, and Tom Flannigan, manager, Customer Requirements.

Three Complete Sloan Studies; Three Others Slated to Start

Six Northrop Corporation Sloan Fellows are making news with three taking on new duty assignments following completion of their studies and three others set to enter the program initially.

The Sloan Program is an intensive study concept teaching the latest methods of advanced management techniques. Participants are recognized as Sloan Fellows. Selection for this honor is limited to a few executives chosen from business firms across the nation.

The Purpose

Northrop participates in the program as one phase of its overall program for developing management personnel in anticipation of greater responsibilities.

Charles P. Hass completed participation in the Sloan Program at Stanford University. He has taken on duties as assistant to the general manager of the Ventura Division and assigned to special studies.

Donald H. White completed the program at Massachusetts In-

stitute of Technology. He has been named manager of Financial Operations at the Aircraft Division with responsibility for Banking and Credit, Accounting and Financial Planning, Business Research and Analysis, Payroll and Timekeeping.

Corporate Duty

F.M. Scott, Jr. is also a graduate of the Stanford-Sloan Program. His new duties, at the Corporate office, are as director for Airport Systems Contracts and Pricing with responsibilities of these activities as related to proposals and agreements made between Northrop and others, including existing and future joint ventures.

Allen Taie, director of Engineering for the Electronics Division, has been accepted as a Sloan Fellow in the MIT-Sloan study program for this coming year.

Marvin Elkin, formerly manager of Operations Support—Budgets and Analysis for the Air-

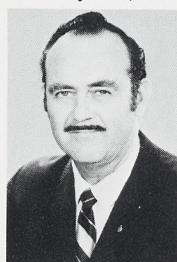
craft Division, has been accepted for Sloan studies at Stanford along with Paul Lawrason, program director, Aeronautical Systems, at Northrop Ventura.

Clooney Elected Chairman of L.A. Section, AIAA

Robert E. Clooney, senior engineer, 747 Engineering, has been elected chairman of the Los Angeles section of the American Institute of Aeronautics and Astronautics.

The AIAA is a professional society of aerospace engineers and scientists with a national membership of approximately 35,000.

The Los Angeles section, with a membership of about 5,500, is the largest section in the United States. Its membership includes some of the most prominent corporate executives in the aerospace field. Dr. Ronald Smelt of the Lockheed Corporation is currently the national chairman.



Mr. Clooney

First Choice

Mr. Clooney was the unanimous choice of the AIAA Advisory Council to fill the section vacancy caused by the death of Dr. Donald Perkins, the former chairman. Mr. Clooney had just been re-elected treasurer for his second consecutive term.

He is a 23-year veteran of Northrop's Aircraft Division having started in the Wing Design group on the XP-89. He was subsequently involved in structural design on the N-23, YC-135, RB-49, F-89, F-5, Y-21, M-2, HL-10 and currently the 747.

Mr. Clooney received his engineering education at Cal-Aero Technical Institute and the University of Southern California. An Air Force veteran, Mr. Clooney currently holds the rank of lieutenant colonel in the Air Force Reserves and is affiliated with a research and development squadron.



TROPHY PRESENTATION

From left, President Thomas V. Jones, Arlie Blood, General LeMay and General Doolittle.

Gunnery Trophy Returns To LeMay After 35 Years

Former Air Force Chief of Staff General Curtis E. LeMay (USAF Ret.) got a pleasant surprise during his recent visit to Northrop. The general was presented with the Scott Gunnery Trophy, an award he had won in 1935 as a first lieutenant.

The presentation was made by Arlie J. Blood, manager of Current Aircraft Requirements for the Aircraft Division, who was the last man to win the trophy. Mr. Blood, a retired Air Force colonel, won the award when he was a captain in 1948.

Famous Pair

General LeMay was at Northrop for a briefing along with another distinguished military man, Lt. Gen. Jimmy Doolittle (USAF Ret.), the leader of the first bombing raid over Tokyo in 1942.

The Scott Gunnery Trophy originated in the 18th Pursuit group in 1931 in memory of Second Lieutenant William J. Scott. Lieutenant Scott was stationed in Hawaii and was recognized as a leader in experimental and record glider flights over The Pali, a famous Hawaiian landmark. The trophy was presented to the winner of an annual aerial gunnery competition up until the time it was retired in 1948.

General LeMay plans to present the trophy to the Air Force Academy Museum for permanent retention.

Thomas Jones Is AFMA Speaker

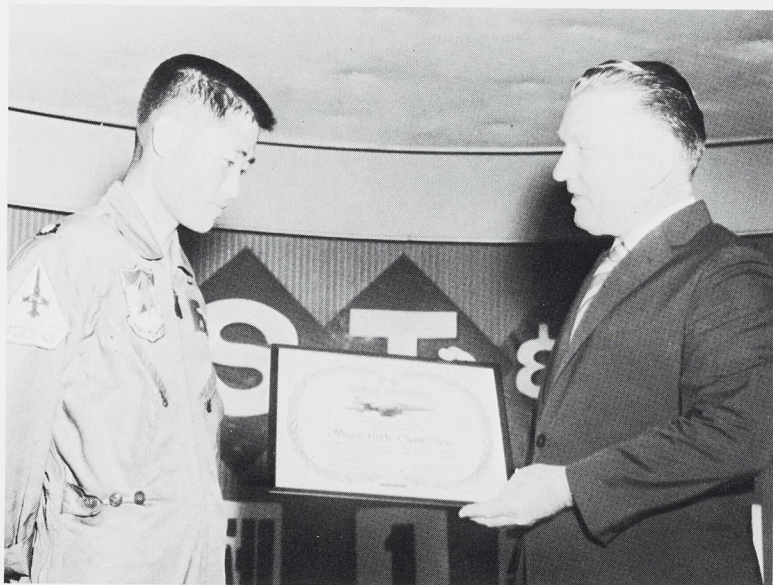
President Thomas V. Jones will be one of the key participants in the 17th Annual Conference of the Armed Forces Management Association, to be held Aug. 20-21, at the International Hotel.

Mr. Jones will join the Honorable Philip N. Whittaker, assistant secretary of the Air Force for Installations and Logistics, and the Honorable Barry J. Shilito, assistant secretary of Defense for Installations and Logistics, in a discussion of Industry-Government Relations.

The AFMA is a national non-profit organization dedicated to the improvement of management throughout the defense establishment.

**IS IT NEWS?
CALL EXT. 4273
HAWTHORNE**

He's Logged 1,000 F-5 Hours



MAJOR PARK CHANG SOO of the Republic of Korea's 1st Fighter Wing receives plaque from O. L. Beck, Northrop Field Service representative, after he became first ROKAF pilot to log 1,000 hours flying the Northrop F-5 tactical fighter. Northrop's J. P. Ashby, manager of Logistics, and W. A. Weir, director of Far East Affairs, attended presentation.

Savings Office Holding Checks, Stock For Group of Former Northrop Workers

Northrop's Savings Plans Administration office is seeking the help of present Northrop employ-

ees who may know the whereabouts of former employees.

This office is holding either Northrop stock or checks for the individuals due them under the Savings Plans. Employees who know those listed below are asked to have the individual call ext. 302 at the Corporate office.

Shares of Northrop stock are being held for Frank J. Perry, Manuel Walkley and Richard C. Stiles.

Holding Checks For

Undeliverable checks are being held for Stanley E. Howell, F. J. Edwards, B. E. Snyder, C. S. Ostrowski, C. E. Woods, V. G. Schnick, Jack D. Long, C. D. Hall, T. R. Mercer, R. W. Aggen, D. C. Canfield, R. L. Grace, Roby Harris, O. P. Horstman, C. Hunt, Jr., Jessie James, R. E. Johnson, D. L. LaRue.

A. J. McKernan, J. L. Nichols, Kent Ogasawara, W. B. Rodgers, Anthony Vallone, B. L. Willis, C. L. Barrack, D. C. Bull, J. O. Fagala, Mildred Valdez, John W. Roberts, J. W. Strange, R. W. Porter, R. W. Selway, B. E. Miller, R. A. Lehmann, L. R. Goldson and H. W. Deadman.

HISTORIANS GO WILD OVER 747

When Boeing 747 superjets carried one million passengers in less than six months of commercial service, aircraft historians had a field day making comparisons.

They found the Boeing 707 required one year to reach this mark in about 15,000 flights. Twin-engine transports of the 1930's flew two years and some 50,000 flights to reach one million passengers. Prior to this period, and before the first million passengers had flown commercial, almost a quarter century passed in which 200,000 flights were made.

Boeing 747's carried one million passengers in just 5,000 flights. About one-half of that first million flew the Atlantic Ocean route, 150,000 over the Pacific Ocean, and the remainder on U.S. transcontinental routes.

Northrop Entry in Hawthorne Community Fair



NORTHROP FLOAT in the annual Hawthorne Community Fair drew ohs and ahs along the route with these beauties aboard. They are from left, Linda Blank, Cathy Young, Nancy Robinson, Peggy Roth, Gayle Hayes and Emily Ramirez, all Aircraft Division employees. Float won top trophy in the commercial division. Jack Cooper and Tom White coordinated float activities.

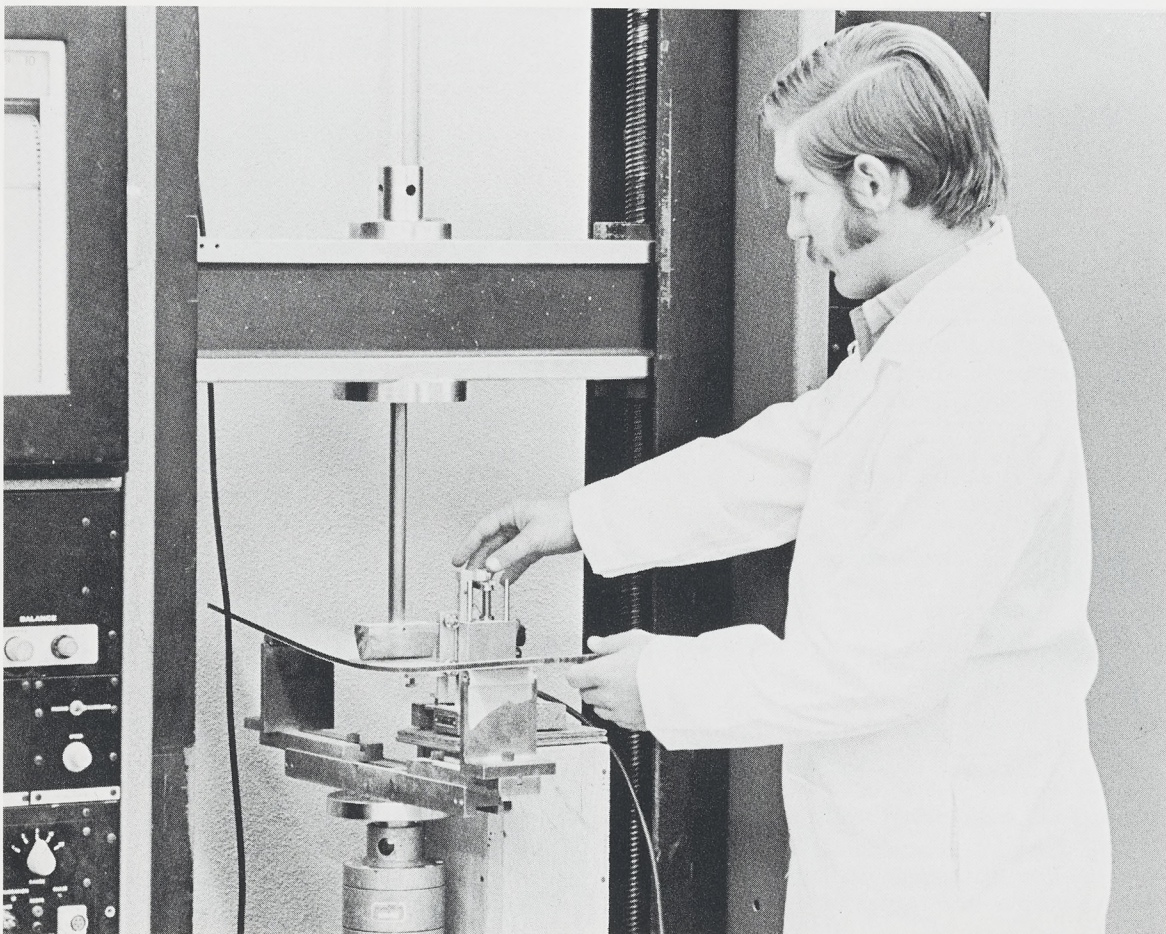


FLOOR PANEL LIST

Northrop Pacific's Bob Lee uses the Tinius Olsen testing machine to check the adhesive strength of a Boeing 747 panel test coupon. His work will provide a permanent traceability record.

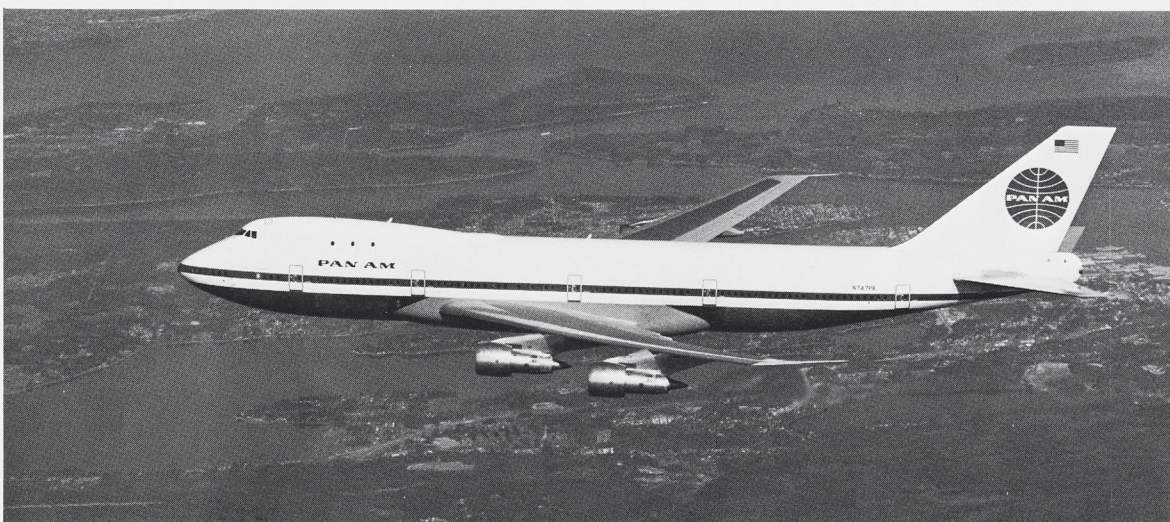


CHECKING DOOR PANEL
At left, R. H. Bunton, top, D. A. Gibbs, center, and T. J. Withrow check finished entry door panel at Aircraft Division. They assure no minute parts have been overlooked by utilizing blueprints and detailed visual check list.



VENTURA TESTING ADDS TO 747 QUALITY

Randy Gore of the Ventura Division adjusts a 10,000-pound Instron tensile testing machine which flexes a test beam for the 747 wing fairing honeycomb panel.



MONARCH OF THE SKIES—THE BOEING 747
Built-in quality is the cornerstone of the success of this new aircraft.

Quality Control Plays Major Role In Success Story of Boeing 747

THE Boeing 747 has become one of the most successful commercial airliners ever built, flying one million passengers in its first six months of service, an average of over 26,000 per day.

In load factors — the percentage of passengers to seats available — it writes new records regularly, a fitting tribute to its acceptance by the flying public.

By any yardstick the 747 is the personification of quality.

In its astounding success is mirrored the concerted effort of many people — designers and laboratory technicians, assemblers and inspectors, flight liners and flight crews — who are the backbone of this quality.

Because Northrop personnel work near the beginning of the 747 production cycle, to them falls the task of building a firm and flawless foundation. It is a demanding task, calling for craftsmanship of the highest order.

Northrop News has researched this effort and will present, in the weeks ahead, a detailed look at how Northrop maintains quality on its 747 production responsibilities.

To better understand the many parts of the program, it is necessary first to view the quality program in its broadest concepts.

Northrop has perfected an elaborate and detailed quality assurance program for the 747. Over-all coordination of the pro-

gram falls to a Corporate Quality Control Coordinating Committee chaired by R. W. Young, manager of Quality Control at the Aircraft Division.

Each division participating in the 747 program has its own quality control leader who is responsible to the committee as well as his own division manager. They include C. L. McCrary of the Aircraft Division; Frank McNabb of the Electro-Mechanical Division; George Johnson of the Ventura Division; and Bill Rideout of Northrop Pacific.

More than 400 Quality Control personnel aid these men in the execution of their duties.

Northrop employees have made commendable progress in their effort to improve quality. For example, since January of this year they have dropped from an average of 372 defects per each 1,000 hours worked to 240 defects per 1,000 hours, or approximately 30 per cent. In terms of shipsets of 747 components this means a reduction from 12,000 to 5,400 has been accomplished. This is approximately 55 per cent with allowances for reduction in man hours per shipset required for production.



INSPECTORS STAND BEHIND EVERY QUALITY PRODUCT
The Electro-Mechanical Division's W. N. Willis makes final inspection of a floor beam assembly, using a feeler gage to check tolerances against parts illustration taped above his work area.



JAPANESE VISITOR VIEWS 747 ASSEMBLY LINE
Momoko Nozaki briefed on monorail system by Charles L. Beuchat.

Family Sends Son to Japan; Greets 'Daughter' from Same

The family of Northrop's Charles L. Beuchat is in the midst of experiencing a firsthand lesson in international relations.

Mr. Beuchat is an Aircraft Division Industrial Training instructor.

His son, Charles, 17, departed recently for a month-long stay in Tokyo, Japan, in the YMCA Youth Exchange program (Northrop News, May 13).

For four days last month the Beuchat family hosted Momoko Nozaki, a 21-year-old Japanese girl in the United States as a participant in the same program. Miss Nozaki is a senior in the International Christian University where she is studying educational psychology in preparation for a career as a recreation worker.

Eight families in the Gardena area are serving as hosts for the young Japanese visitor. She will

climax her local stay with a visit to the Gardena YMCA camp in the High Sierra.

Mr. Beuchat reports his family has thoroughly enjoyed playing host to the young visitor. "We have taken her on tours of various parts of the area, Knott's Berry Farm and other points. She is amazed at the number of Japanese-made cars here and our climate," he said.

Added Meaning

Miss Nozaki visited the Aircraft Division for a tour of the Boeing 747 assembly area. This, she reports, was especially interesting to her in that she flew from Japan here aboard a Pan Am 747.

After leaving her Gardena friends, Miss Nozaki will tour the United States, hitting major points of interest, including cities where her sister lives (Philadelphia) and the home of an uncle (Seattle).

Ron Puente Wins State Amateur Golf Tourney

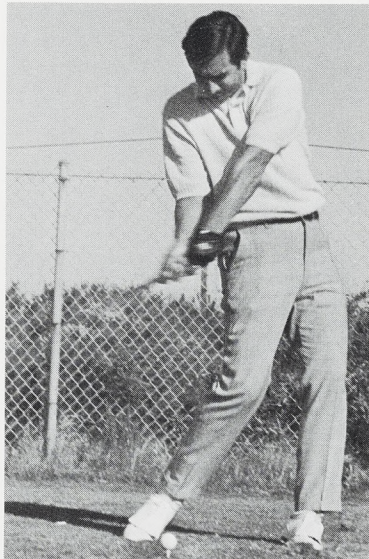
The 1970-71 California State Amateur (Handicap Division) golf champion is Northrop's Ron Puente, a stress engineer with the Aircraft Division.

Mr. Puente captured the title recently by downing his final opponent on the 19th hole of a sudden death overtime. A par for the hole did the trick.

This annual event drew 319 entries, with 200 of them playing in the same handicap division with Mr. Puente. The 8-day match play elimination tournament was held at the Monterey Peninsula Country Club.

Mr. Puente lettered for three years in golf and captained the Cal Poly Pomona linksmen in his final year of college. His honors included recognition as the "outstanding golfer of the year" for Cal Poly in 1963.

Following his graduation, Mr. Puente limited his golfing activities to an occasional "friendly round." He has played in the NRC Twilite league for the past three years and is currently captain of the Tuesday night loop.



CHAMPION'S FORM
Ron Puente on the tee.



KEEPING YOUNGSTERS OFF THE STREET
Charles Hohn, left, receives thanks from Park Director Levine.

Hohn Builds A Trailer To Aid Junior Football

Charles S. Hohn, factory specialist, Aircraft Division Engineering Laboratory Fabrication shop, is building a house trailer, but it is not for living or traveling.

The purpose of his trailer is to help keep boys between the ages of 9 and 13 on the football field.

Bare Essentials

Mr. Hohn, who is also vice president of the Lomita Junior Football League, decided that a snackbar trailer would be a good way to raise needed funds for the league.

He first bought an old trailer for \$150, expecting to refurbish it for use. He wound up with nothing useable except two wheels, an axle, and two metal frame channels.

With this for a start he began building. His help was board members and friends of the

league, including an excavating contractor, an airline pilot, a carpenter, a molasses salesman, a refinery rigger and a stevedore.

They worked almost entirely with donated material. Old packing crates furnished lumber; an appliance maker donated a four-burner countertop stove; other donations included water tanks, roof vents, wiring, light fixtures and plumbing materials. The builders are still hoping for donations of a two-flavor drink serving unit, hot dog and bun warmers and popcorn machine.

The trailer, while not completely finished, has already been put into commission. It was used at the league signup picnic on July 11 to serve free watermelon and soft drinks to prospective football players and their families.

Worthy Cause

Mr. Hohn estimates that the builders have put about \$500 into the trailer which, when completed, will be worth about \$5,000. Money made with the snackbar trailer will be used to defray league expenses, enabling the group to continue providing activity for Lomita youth.



SERVING TIME
Mrs. Lorraine Hohn, daughter Janet and friend.

EASTERN OFFICE AT NEW LOCATION

Northrop's Eastern Regional Office (Washington, D.C.) headed by J. V. Holcombe, Northrop vice president, has moved to a new address.

The new address is 1701 N. Fort Myer Drive, Suite 1208, Arlington, Virginia. Former location was 1730 K Street NW, Washington. The new telephone number is (703) 525-6767.

OPINIONS, PLEASE—What Is America's Greatest Asset?



Mike Presswood, inspector, Electronics:

America's greatest asset is her youth. Unfortunately, a small number of that asset is acting more like a liability.



Barbara Joanides, secretary, Electronics:

Her youth. They are America's only hope, whether good or bad, because they are the leaders of the future.

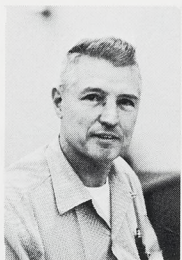
Joyce Robinson, procurement clerk, Ventura:

Having the freedom to do what you want. We have a freedom to work at the job we like, freedom to travel wherever we want, freedom to do many, many things.



Herb Covell, senior Marketing representative, Ventura:

The people. They are a cross-section of the entire world and represent the best of the world. It is the people who perpetuate the democratic way of life which makes this country what it is.



William E. Riesch, timekeeper, Electro-Mechanical:

I think our greatest asset is the manner in which each individual is free to think and express his or her opinions on any local, state or federal issue.



Bettie Berger, secretary, Electro-Mechanical:

I think it is our wealth of natural resources. We have a very rich country in this respect and it has provided us the best place in the world to live.

Gerry Coleman, secretary, Aircraft:

I think it is the freedoms we enjoy—freedom of speech, thought, action, religion and choice. But I feel that too many people are now taking advantage of these freedoms by abusing the rights of others, a situation that could lead to the loss of our most cherished heritage.



Earle Paul, engineering specialist, Aircraft:

Our form of government. It is based on a Constitution that guarantees individual freedoms to our people. The nation has experienced a lot of ups and downs for almost 200 years, yet the Constitution survives.



Classified

Classified ad service is provided free of charge to all Northrop personnel. Ads for agencies, commercial enterprises and private businesses are not accepted. The Northrop News reserves the right to edit or omit ads. Obtain ad form C67 from organization clerk and mail ad to Northrop News, 170, zone 62. Ads are limited to one item and one ad per person each issue. Deadline is noon Wednesday, one week before publication.

Automobiles For Sale

- Chevy II**, 1963, orig. owner, auto. trans., r/h, \$800. 213-674-4192. A
- Pickup**, Ford, 1961, F-100, w/camper, sleeps 5, \$1,095. 213-675-8655. A
- Pickup**, 1962 Chev., ½ ton, V-8, stick, r/h, w/w, high camper shell, \$1,195. 213-371-3781. A
- Buick**, 1965 Riviera, full power, \$1,700. 213-869-2673. A
- Jaguar**, 1962, 3.4 sedan, stick, overdrive, \$875. 213-378-3809. A
- Volkswagen**, 1967, 1600, \$1,195. 213-756-7041. A
- Corvair**, 1964 Monza, r/h, 4-spd., new clutch, \$375. 213-569-6543. A
- Datsun**, 1969, 2000, radials, \$2,100. 213-454-4081. A
- Cougar GT**, 1968, p/s, air, p/b, 390 eng., \$2,300. 213-340-6337. A
- Cadillac**, 1962, 4-dr., full power, \$375. 213-644-6274. A
- Ford**, 1958 Fairlane 500, 4-dr., h/top, r/h, p/s & p/b, \$125. 213-679-3889. A
- Volkswagen**, 1960, needs paint, \$300. 213-325-4860. A
- Buick**, 1964 Le Sabre, 2-dr. h/top, new batt., rebt. trans., \$250. 805-495-8377. A
- Ford**, 1965 wrap-around, \$100. 213-860-5618. A
- Ford**, 1958 Galaxy, 2-dr., motor rebuilt, \$125, 213-675-6020. A
- Chevelle**, 1965 Malibu, SS 283, \$1,000. 213-823-2070. A
- Pickup**, 1962 Dodge, auto. trans., trailer hitch, \$700. 213-329-6553. A
- Volkswagen Bus**, 1958, \$395. 805-648-2402. A
- Chevrolet**, 1962 Bel Air, stick, p/s, 6 cyl., \$300. 213-324-5037. A
- Cadillac**, 1965 convertible, De Ville, full power & factory air, \$2,200. 213-663-3622. A
- Continental**, 1964, \$795; Cadillac, 1966 convt., de Ville, \$1,850; Buick, 1967 Special, \$1,195; Triumph, 1967 Spitfire, \$1,095, all minimum bids, Credit Union ext. 1117. A
- Scout**, 1962, full top, 4-whl. drive, o/drive, 9.15x15 tires, tail-gate boot, \$875. 213-676-3388. A
- Pontiac**, 1967 GT0, f/glass wide ovals, 400 cu. in. V-8, Hurst linkage, \$1,350. 213-372-8171. A
- Mercedes-Benz**, 1961 190SL, new convt. top, AM-FM radio, 53,000 mi., \$2,000. 213-644-0067. A
- Volkswagen**, 1965, AM-FM radio, new seats & tires, \$750. 213-671-7875. A
- Chevelle**, SS396, 350 h.p., p/s, p/b, 4-spd., many extras, \$2,400. 714-828-4853. A
- Buick**, 1968 Special, 6-cyl. 360 eng., r/h, power, \$1,695. 213-374-9944. A
- Mustang**, 1965, 289, 3-spd., \$1,000. 213-371-5646. A
- Cougar**, 1967, V-8, 4-spd., air, 8-track tape, \$1,525. 213-372-1386. A
- Austin Healey**, 1964 3000 MK III, o.d., r/h, new top, \$1,200. 213-456-3019. A
- Volkswagen**, trans. recently o/hailed, \$400. 213-375-0061. A
- Studebaker**, 1961 Lark, V-8, h/top, \$200. 213-327-8047. A

Household Items For Sale

- Sofa**, red & gold, 9', \$150. 213-376-5551. B
- Sofa**, 8' beige leatherette, matching chair, \$70. 213-378-3017. B
- Hutch**, alderwood, \$150. 213-631-6933. B
- Dishwasher**, portable, 1970, Kenmore, used only 4 mos., \$185. 213-644-3853. B
- Dining Room Table**, solid maple, dropleaf w/ fitted table pads & 4 chairs, \$85. 213-374-4953. B
- Stove**, Kenmore, 4 burner, 2 yrs. old, \$50. 213-654-4563. B
- Organ**, Lowrey, Berkshire mod., 12 yrs. old, 1 octave base pedals, 2 keyboards, \$250. 213-675-9073. B
- Bedroom Set**, mahogany, desk, dble. dresser, men's chest of drawers, 2 twin beds & night stand, \$225. 213-478-5732. B
- Headboard**, dble. bed, white w/pattern, \$5. 213-370-2828. B
- Baby Bed**, new mattress, \$15. 213-779-6842. B
- Washer**, Kenmore, & dryer, gas, w/maintenance contract, \$35. 213-372-3827. B
- Pole desk** w/light attached, \$10. 213-320-3430. B
- Sewing Machine**, deluxe White zigzag, w/ attachments, walnut cabinet, \$75. 213-322-7779. B
- Crib**, & porta-crib w/mattresses, mesh playpen, jump & car seats, scale, sewing table, after Aug. 9, \$49 or sell sep. 213-377-5408. B
- Sewing Machine**, Pfaff zigzag w/attach., ivory cab., \$65. 213-328-0460. B
- Bathinette**, \$8. 213-325-3675. B

Miscellaneous For Sale

- Encyclopaedias**, Britannica, 1946 edition w/ full set of Britannica year books up to 1967, \$50. 213-363-3843. C
- Oranges**, Valencia, you pick, \$1.50 box 213-340-2106. C
- Boat**, 15' glaspar, 50 h.p. Evinrude, elec. start., trailer, extras, \$700. 213-785-9105. C
- Glider Trailer**, 30', located at Mammoth Mountain, \$500. 213-834-9205. C
- Golf Clubs**, 4 woods, 1, 2, 3, 4 & irons 2-9, grips, \$50. 213-291-7438. C
- Cabin Cruiser**, 20', Crestliner, inbd.-outbd. eng., bait tank, bilge pump, full canvas covers, \$2,900. 213-888-8890. C
- Engine**, 1955 Chrysler, Hemi, 55,000 actual miles, w/carb., starter, \$50. 213-670-6848. C
- Enlarging Meter**, Spot-O-Matic, \$5. 213-835-3869. C
- Motorcycle**, 1970 Honda, 350 CL, 2300 mi., still under warranty, \$700. 213-377-6374. C
- Motorcycle**, 1966 Honda Super Hawk, CB77, 32 h.p., 338 cc, \$300. 213-547-4141. C
- Dog**, cocker, male, 1½ yrs. old, tan, \$15. 213-679-5177. C
- Mobile Home**, 2 bdrm., 12' x 60', Biltmore, awnings, utility shed, furn., \$5,800. 714-674-4591. C
- Land Camera**, Polaroid, #210, auto., b/w & color, flash attach. incl., \$25. 213-676-6726. C
- Tires**, 3 6.50x16, 8 ply, mtd. on 8 lug split rims, fits ¾ ton Chev., \$25 ea. 213-323-9598. C
- Motorcycle**, Bultaco, 250 cc, 1969 Pursang, \$595. 213-831-4735. C
- Motorcycle**, 1969 Triumph, 250 cc, \$500. 213-860-6853. C
- Pups**, Basenji, barkless, AKC, \$75. 714-528-1919. C
- Engine**, Ford 406, 4-bolt main bearings, dual quads, dual point dist., headers, eng. disassembled, \$125. 213-379-6938. C
- Motorcycle**, 1966 Harley, 50 cc, w/extra sprocket & chain for trail, \$135. 213-833-7306. C
- Pups**, German shepherd, white samoyed, 7-wks. old, 2 females, \$15 ea. 213-676-8456. C
- Motorcycle**, 1969 Yamaha, DTI 250, Enduro, \$600. 805-252-5846. C
- Golf Clubs**, 1969 alum. Spalding Elite, 1, 3, 4, 5 woods, \$75. 213-375-0825. C
- Golf Clubs**, reg., matched Spalding Top Flite woods, 1, 3, 4, 5, regular shaft, D2 swg. wt., \$40 213-323-6795. C
- Golf Clubs**, Spalding touring pro woods, 1, 3, 4, alum. shaft, medium D3, \$30. 213-377-2160. C
- Ski-Boat**, 16' Rayson-craft, f/glass, 427 Ford, bucket seats, many extras, \$2,700. 213-677-4215. C
- Photo Copier**, \$50. 213-545-6719. C
- Air Conditioner**, GE, BTU 7000, \$100. 213-644-6505. C
- Airplane**, 1961 Cessna 210A, fully equipped, \$12,500. 213-399-4168 or Credit Union ext. 1117. C
- Wheelchair**, deluxe Everest & Jennings Premier folding-type, \$200. 213-324-4609. C
- Engine**, air-cooled, 4-cyl., 10 h.p. Clinton, \$15. 213-321-3979. C
- Travel Trailer**, 1970 26' Oasis, Tandum axle, twin beds, tub & shower, fully self-contained, many extras, \$4,500. 714-827-1163. C
- House**, 5-bdrm., 3 baths, fam. rm./living rm., in Holly Park, Gardena, 10 mins. to Northrop, \$33,950. 213-321-2047. C
- Mini Bike**, Taco 99, shocks front & back, 1 mo. old, 5 h.p., \$150. 213-676-4212. C
- Lawnmower**, 20" rotary, 3.5 h.p. eng., \$65. 213-675-4156. C
- Poodles**, toy, silver, female, champ. sire, 10 wks. old, \$100. 123-372-9752. C
- TV**, RCA 21" console, 3 yrs. old, walnut, swivel, b&w, \$55. 213-274-3325. C
- Wigs**, auburn red, European hair, cut in full Saseon or Bonaparte style, \$17. 213-324-6043. C
- Motorcycle**, 1970 trail Honda CT 90, 1,500 mi., \$260. 213-531-8943. C
- Mobile Home**, 20x52, 2-bdrm., 2 baths, 5-Star adult park, no pets, Rolling Hills area, \$13,900. 213-325-4390. C
- Swimming Pool**, Doughboy, 15' dia. x 3' deep, w/ladder, liner, filter & vacuum, \$35. 714-544-3811. C
- Display Cases**, for miniatures, models, coins some illuminated, \$3-\$7. 213-941-1865. C
- Drums**, Rogers dble. base-dble. tom set, w/ chrome snare, cymbals, & floor tom, \$500. 213-542-7412. C
- Cement Mixer**, 5½ cu. ft. capacity, ½ h.p. motor, \$100. 213-377-5322. C
- Pups**, Saint Bernard, AKC reg., \$150. 213-830-2116. C
- Acreage**, 5 acres, Antelope Valley, East of new airport, utils., rds., \$400 dn. or \$83 dn. on land contract, \$8,250. 213-378-1026. C
- Stereo Console**, Curtis Mathis, & TV, b/w, cherry wood finish, provincial style, \$95. 213-328-7887. C
- Lot**, RI, ¾-acre, close to Roy Roger Apple Valley Inn, \$7,950. 714-535-1694. C
- Typewriter**, small Underwood, portable, \$35. 213-870-8326. C
- TV**, 19" Emerson, all-channel b&w portable, \$50. 213-439-6432. C
- Record Player**, portable, 2 spkrs., Decca hi-fi, \$18. Box 1501. C
- Wheelchair**, Everest & Jennings, used very little, \$85. 213-324-7257. C
- Home**, 3-bdrm., marble bath, completely remodeled, cpts., dpts., 50 x 135 lot w/6' block fence, detach. 2-car gar., w/18x20 hobby shop, Gardena, \$29,950. 213-323-8877. C

Bill Mendels

Bill Mendels, 16-year-old son of the Aircraft Division's Mort Mendels, set three world's records in archery at the recent California State Flight for 1970.

In setting the records young Mendels broke two of his own records set last year. Shooting for distance in the Intermediate Boys section, he shot an arrow 526 yards and 8 inches for a new world's record for boys in the 35 pound class. He then set other records by shooting 662 yards and 2 inches in the 50 pound class, and 617 yards, 1 foot and 9 inches in the Any Weight Bow class.

In addition to these records, he placed first in the Broadflight (Feather) division, shooting an

WITH BOW AND ARROW

Sets New World's Records

arrow 254 yards, 2 feet and 7 inches. In this division he beat his father's score in the men's class by 1 foot and 6 inches.

Officials at the meet proclaimed his marks as new world's records for Intermediate Boys and have applied to the Amateur Athletic Union (AAU) for international certification.

Bill started shooting when he was eight years old with a laminated fiberglass bow his father made for him, but did not take much interest in it until he set

two records in the 1969 State meet, his first competition.

In the 35 pound class he shot an arrow 506 yards, 1 foot, and 2 inches, and in the 50 pound class achieved 647 yards, 2 feet. He also shot 468 feet and 10 inches to take a first in the unlimited class.

With this incentive, he began to take the sport more seriously and came back this year to set his three new world's records.

Both father and son archers will compete in the nationals in October.



BILL MENDELS IS ON TARGET

Sixteen-year-old Northrop son has broken three world's records, two of which he set himself a year ago.

EDITOR'S NOTEBOOK

Here are some more names of Northrop travelers who have selected the Boeing 747 superjet for their personal travel. Larry King of the Aircraft Division returned from New York July 31 aboard American Airlines. And Angela Goyen, Aircraft Division, and her husband have selected Pan Am for their trip this week from San Francisco to Tokyo. Later this month they will be coming home aboard one of the initial Pan Am 747 flights from Australia. H. L. Wilson, Aircraft Division, and his wife made a special detour to pick up a July 26 TWA flight from Chicago to Los Angeles. Others?

* * *

Did you notice Northrop News' "New Look" this issue. Down at the print shop they say we have cleaned out our gutters, expanded our borders, screened our mast and generally opened up. We hope you find the end result a little more attractive as well as easier to read. There is an interesting little footnote to this change. It represents one of the few alterations of printing formats carried out by the News since its predecessor made its debut 28 years ago.

There is little doubt change is taking place everywhere these days, in just about every phase of our lives. It has reached a point you have to be very flexible to keep up. News staffers like to feel they are flexible but consistent. Consistent, that is, in the basic purpose of the News—to publicize Northrop, its products and its people. By people we mean both employees and their families.

While staff members burn a lot of shoe leather trying to move about all Northrop facilities to gather news, the widely-scattered facilities are all but impossible to cover each time we go to press. That's why we rely on employees to keep us informed. And that's why we ask you to let us know about potential stories. We will take it from there, the initial tip is the important thing. Just drop a note to the News, 170/62 in Hawthorne, or call us at ext. 4273.

NORTHROP NEWS

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Anybody for Hog Calling or Greased Pole Climbing?

Bill Johnston's co-workers at the Ventura Division are invited to join him this weekend at the 11th annual 4-H and Future Farmers of America San Fernando Valley Fair at Devonshire Downs in Northridge.

Mr. Johnston, of Product Support, is Fair director by virtue of his role as president of the 13-club San Fernando Valley Council of 4-H Clubs.

The fair is a combination of an old-time country livestock exposition and auction and a good-time display of 4-H and FFA projects intermingled with such lighthearted activities as hog calling and greased pole-climbing contests.

Serving as grand marshal for the three-day event will be television personality Alvy Moore who portrays "Mr. Kimble," the farm agent, on "Green Acres."

Last year's event at Devonshire Downs in Northridge attracted 14,000 people over the three days and saw the oldest of Mr. Johnston's seven children, Robin, reigning as Fair Queen.

Friday's activities from 9 a.m. to 11 p.m. include exhibits of 4-H projects ranging from home economics to the judging and exhibition of large livestock. Nearly 800 FFA-4-H participants will be involved.

Saturday's hours are the same but the activities vary a bit with

judging of small livestock and then a major auction at 6:30 p.m. 4-H youngsters auction their blue ribbon-winning animals which include steers, lambs and hogs. They use the money for a subsequent project, Mr. Johnston explained.

Organizations, business groups and individuals account for most of the purchases of the animals "which have had loving care during the past year." He also emphasized the high quality feeding programs carried out by the members assure an excellent grade of meat.

Saturday will also see a special demonstration of guide dogs trained for the blind. (The Nor-

throp News last year carried an account of how Robin trained a guide dog.)

After a special breakfast for the auction buyers and sellers the public Sunday events begin at 8:30 a.m. with a horse show. Showmanship classes are followed with the grand entry and parade of stallions at 12:30 p.m. and performance classes in the afternoon.

Sunday will also offer a standard dog care obedience demonstration, review of clothing made by 4-H girls and then climax with an awards program before closing the fair at 6 p.m.

Mr. Johnston describes the event as "an old-fashioned coun-

try fair" with daily contests in chicken calling, watermelon eating, rooster crowing, pancake baking and egg laying, to name a few.

"This isn't a fair with rides or games of chance like a carnival," he added. Food and refreshments will be available at special concessions.

The Fair is a good event for the entire family, Mr. Johnston emphasizes. He urges Venturans to come early and stay late and take advantage of an opportunity to purchase quality meat. The site is near San Fernando Valley State College at the corner of Zelzah and Devonshire. Admission is free.

Ventura Softballers Shaping Up As 'For Keeps' Play Is Under Way

After a nearly disastrous practice and qualifying round the Ventura Division-sponsored softball team is in first place (as of this writing) in the Conejo Valley Recreation and Park District's Open Fast Pitch B League.

The practice round record of two wins and eight losses began with a 20-10 setback at the hands of Loynd Ford players. "That was our toughest loss by far," explained co-manager Ralph Reeves.

"First string pitcher Tom Pappas was hit in the chin with a

line drive and required stitches and then our next pitcher, Chuck Brune, took a hard smash on the ankle."

But the Venturans bounced back and beat Burroughs 10-6 and the Valley Oaks Teachers Assn. 6-3 in consecutive games before beginning to lose again.

There were some close ones, though, including a 1-0 loss to State Farm Insurance in extra innings and a 2-1 defeat at the hands of the Los Robles Hospital nine.

The poor record, however,

qualified Ventura for the B League where conditions were a bit better. Mr. Pappas has returned to form and pitched a 10-1 win over Semtech and Mr. Brune threw a 10-3 victory over Capital Records.

"Against Semtech we scored seven runs in one inning and when we beat Capital all our runs came in the fifth inning," Mr. Vincelette said. So Ventura is now 2-0 and has a chance to win some hardware.

Providing offensive punch by hitting over .300 are third baseman Tom Leichtfuss, left fielder Ed Ray, second baseman Dean Wolf and centerfielder Claude Vincelette. First baseman Cliff Jarvis is seeing limited duty because of a pulled leg muscle.

Sterling defensive plays have helped Ventura in its two league victories.

Catcher Pat Cloward foiled an attempted steal with a fine throw off a swinging strike and Ken Conger provided outstanding relief service when he stepped into the first baseman's role and rapped out three hits in three tries against Capital.

Anchoring the infield defensively has been shortstop Dave Coe. Alert plays thwarting extra-base hits have been turned in by outfielders Gene Linhart, Dan Clelland and Ralph Reeves. Teaming with Mr. Coe on plays at second has been Bill Higginbotham.

Ventura personnel may watch their co-workers in action on the diamond as the league goes into its final rounds this month.

The remaining schedule has Ventura playing Capital on Aug. 11, State Farm on Aug. 12, Burroughs on Aug. 18 and Valley Oaks Teachers in the finale on Aug. 21. All games start at 6:15 p.m. and all but the State Farm game will be played at Newbury Park High. The State Farm contest is set for Thousand Oaks High.

Admission is free.

HALLICRAFTERS

(Continued from page 1)

vides a minimum of 2 watts RF power output with a battery life of eight hours.

Each unit has four transmit and receive circuits. The Cleveland version of the Hallcrafters HC-400 utilizes external wearable speaker/microphone/antenna combination. All three are combined in a compact unit that can be hand-held or worn on a quick disconnect patch attached to the policeman's uniform.



SHOWING OFF FORM for Ventura Division Management Club representative George Bostater is John Garofolo, Jr. of the Conejo Valley Little League Hawks, sponsored by the Management Club. With team mother Mrs. John Garofolo are her other sons, Mike and Garry, and teammate Dean Mitrofanis at left.

GOLF TOURNNEY

Seven Shoot Under 70

Seven men had net scores of 69 or better to set the pace for Ventura Division Golf Club members in recent tournament play at the Santa Barbara Community Golf Course.

Al Hahn's 61 was the best of the day as he won the B Flight. Wayne Merritt shot a 65 for second in that flight and Bill Carruthers came in with a 66 for third.

Winning the A Flight with a 64 was Buck Gilmore. George Avery had a 66.6 for second and third was Sam Westfall with a 67.4.

Mike Antenucci fired a 69 to win the C Flight. It was a father-son battle for the runner-up spot with Hal Barber beating his 16-year-old son, Bill, by one stroke, 70-71.

Leads the Ladies

Shooting a 74 and winning the Ladies Flight was Sue Wiscaver. Lois Sheridan's 82 gave her second while Eileen Munro had an 86 for third.

Wayne Merritt, Ken Brubaker and Chuck Brune took home "closest to the pin" honors and Al Hahn had the longest drive of the day, barely beating Bill Quick, Jr.

Mr. Merritt has a good lead in the Golfer of the Year standings with 290 points. Following are Mr. Hahn, 245, Lew Vinson, 220, Warren Sparks, 200, Mr. Brubaker, 190, Mr. Carruthers,

170, and Mr. Gilmore, 160.

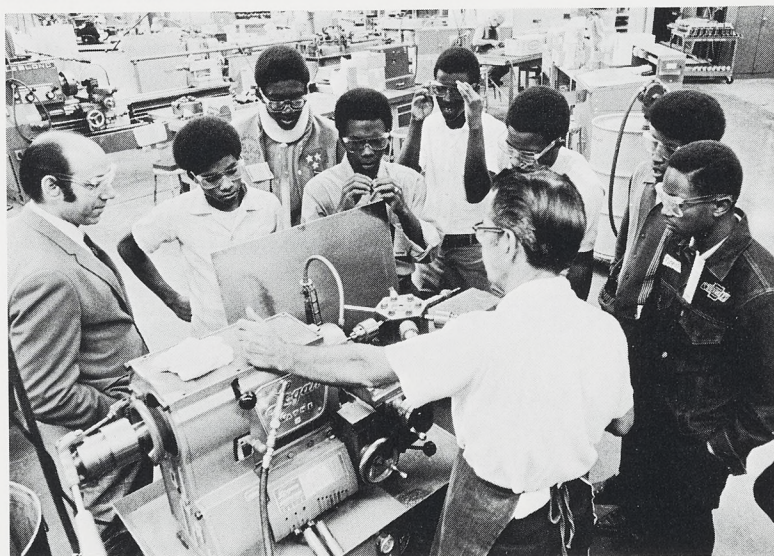
Leading the ladies in the Golfer of the Year points is Lois Sheridan with 195. Sue Wiscaver has 185, Eileen Munro, 115, Yvonne Aitken, 105, followed by Julie Williamson and Barb Forbes.

Next play for Ventura golfers will be Aug. 16 at the Ojai Country Club.

On The Job



R. R. (BOB) LESLIE has been a structural assembler at the Ventura Division for nearly two years. Here he is shown doing finish milling on a wing of the MQM-74A aerial target drone.



GETTING A CLOSE LOOK
Locke High Schoolers inspect work of Ventura Machinist Anthony Viano.

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VENTURA DIVISION EDITION

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Venturans to Offer Papers At Meeting

Four technical papers will be presented by Ventura Division men and another Venturan will moderate a workshop in the 3rd AIAA Aerodynamic Deceleration Systems Conference next month.

Ventura participants in the Sept. 14-16 event at Wright-Patterson AFB in Ohio will be Theo Knacke, Tony McEwan, Dr. Kenneth Lindh, Jack Moeller, Gene Linhart, William Mullins and Don Reynolds.

Committeeman

Mr. Moeller is a member of the 20-man Aerodynamics Deceleration Systems Committee of the American Institute of Aeronautics and Astronautics which is sponsoring the event.

He and Mr. Linhart have co-authored a paper, "Parawing Technology for Spacecraft Land Landing—A Progress Report," based on Ventura's experimental work with parawings under a contract with NASA Langley Research Center.

Mr. Knacke will be organizer/moderator of a workshop on "Flexible Wings, Lifting Aerodynamic Decelerators."

"An Investigation of Parachute Opening Loads and a New Engineering Method for Their Determination" will be the topic of the paper presented by Mr. McEwan.

More Papers

Dr. Lindh's paper will deal with "Tension Impact Tests on Nylon Webbing Structures," while Mr. Mullins and Mr. Reynolds have co-authored a paper covering "Stress Analysis of Spacecraft Parachutes Using Finite Elements and Large Deformation Theory."

Featured speaker at a mid-conference symposium luncheon will be Apollo 13 astronaut Fred W. Haise, Jr. He will probably discuss the performance of the Ventura-produced Apollo Earth Landing System which safely returned the ill-fated Apollo 13 astronauts.

DeSpain, Parker To Participate in Institute at USC

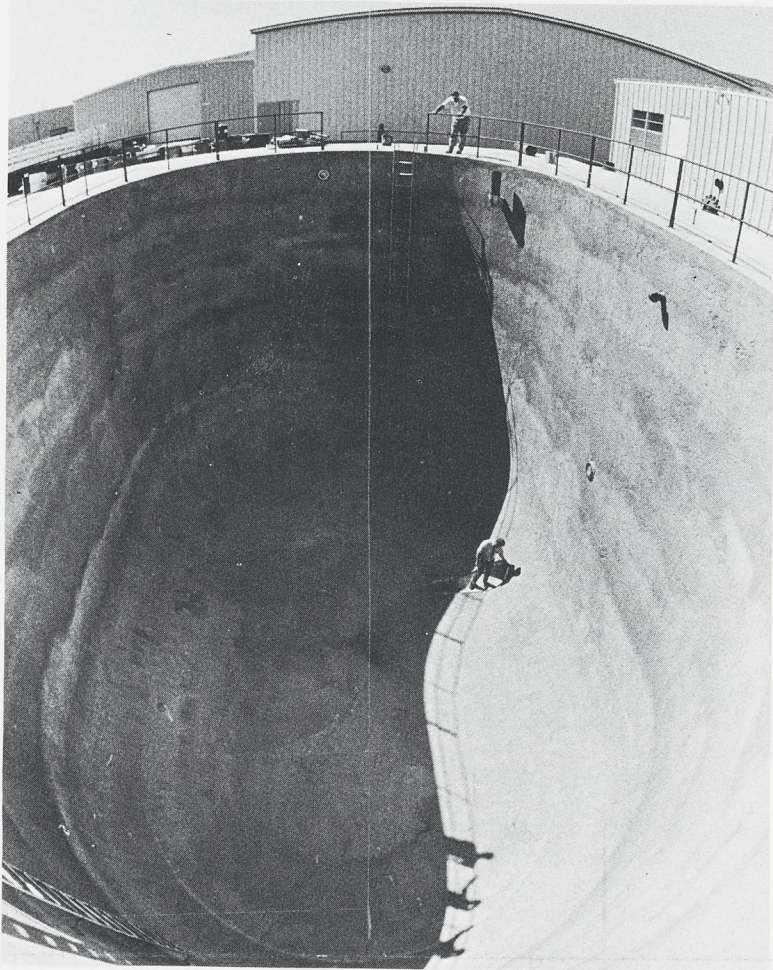
Two more Ventura Division men have been selected to participate in the University of Southern California's Managerial Policy Institute.

Clark DeSpain, manager, Facilities and Property, and Harry Parker, Quality Control, will begin the once-a-week courses in October and conclude the series in April 1971.

Among the other Venturans who have taken the course are John Bonar, Jim Brochu, John Jacobson, George Johnson, W. W. (Bill) Kearney, Ned Padwa, W. F. Sternadel and John H. Wells.

The participants for the program are selected by Northrop. Major Southern California industries are also represented at the institute.

Ready for The Water



SOON TO BE filled with water is the newly-built Acoustic Test Facility at the Ventura Division. Robert Thornton utilized "fisheye" lens in this photo of Facilities Project Engineer Vint Hunnicutt inspecting drain in 30-foot deep facility.

SUGGESTION AWARD

A Bright Idea Pays Off

Bert Stohlman not only figured out a way to make his job easier but he cut Ventura Division operating costs, too.

Mr. Stohlman of the Electrical subunit, earned a cash award of \$117 for a cost-cutting idea in the Suggestion Awards Program.

His idea calls for using fluorescent lights (using 40 watts of power and lasting nearly a year) instead of incandescent lights (requiring 150 watts and a lifespan of 4-6 weeks) in the 125 washroom fixtures.

Not only is it cheaper to operate but then he and his co-workers can do more important things than changing burned-out fixtures.

Finding a less-expensive item to do the job also paid off for Fred Fields and Frank J. Gary of the MQM-74A Structural unit. They received \$57 each for a joint suggestion to replace white cotton gloves with rubber gloves.

TICKET SERVICE

The Ventura Recreation Club office serves as a mutual ticket agency for major events in the Los Angeles area. For information see Kathy Miller at the Rec Club office, Room E-123, from 11 a.m. to 1 p.m. daily.



Mr. Stohlman

Two men in the Quality Control Lab also earned awards. S. L. Ashworth received \$63 for a better process in honeycomb testing and John Kavanagh received \$52 for coming up with a new compression test fixture.

Lee Bradley of 747 Subassembly, a frequent suggester, earned a \$41 award for suggesting a reworking tool, Ed Ray simplified an engineering form and earned \$39 and Bobbie Sperry also got \$39 for suggesting a new off-switch in the Paint Shop spray booth.

Other recent Suggestion Award Program recipients have been Leo Karas, \$28; Fred Valiere, \$18; and Gene Colborn and Pat Meltzer, \$10 apiece.

15-Year Pins Are Awarded to Eight Ventura Personnel

Eight Ventura Division personnel mark 15 years with Northrop this month to lead the latest list of people qualifying for serving pins.

Receiving 15-year pins in August are Hal Barber, Art Kraft, Ron Magee, Karl Stoy, Dick Shewmaker, Ted Shaw, Cecilia Magee and Ruby Sessions.

The lone 10-year pin recipient is George Boren.

Five-year pins will go to Jim Rummel, Joyce Warren, Bernard Federmeier, Santos Jaurez.

Two Pay Hikes Set For Hourly Personnel

Pay hikes for Ventura Division hourly personnel are now being processed and will take place during the next four weeks.

Paychecks of Friday, Aug. 28, will reflect a 3 per cent boost (effective Aug. 17) for hourly employees on the active payroll, on layoff, military leave or approved leave of absence.

Another pay raise, this time 8 cents per hour to compensate for the rising cost of living, goes into effect for hourly personnel Sept. 7 and will be reflected in paychecks Sept. 18.

In simpler terms, an employee earning \$150 per week, for example, will receive \$4.50 per week more in late August and another \$3.20 a week in mid-September for a total increase of \$7.70 per week.

Frank E. Lund, manager of Personnel, made the announcement last week.

Mr. Lund noted that with the 3 per cent hike the minimum and maximum levels of each rate range will also be increased 3 per cent. However, "in no case will an employee's rate of pay be increased to an amount more than the maximum of his new classification."

It's Number Two

The 8-cent boost is the second for hourly personnel in the past 13 months. Another 8-cent increase went into effect a year ago, also to cover cost of living expenses.

Questions about the general and cost-of-living increases may be answered at the Personnel office, ext. 441.

Booklet Is Good Example Of Ventura Team Effort

A new booklet outlining the optimum uses of the Arts and Graphics branch for materials in presentations involving various media is now being distributed to 200 of that support operation's key "customers" at the Ventura Division.

The 20-page booklet, entitled "On The Subject of Presentations, Or How To Get Your Money's Worth Out of Arts And Graphics," was written by D. E. (Curly) Martin, head of that branch, and designed by Colleen Pearson.

"Basically, all it does is offer guidance with an emphasis on keeping the costs down," Mr. Martin explained. It was printed by the Reproduction branch at Ventura.

Brief and to the point with emphasis on simple but proper use of graphics, the booklet also features photos made by Ventura photographers Robert Thornton and Gil Nunn.

On the subject of costs, for example, the booklet cautions, "High presentation costs are usually due to poor planning."

The resulting cost problems include rush scheduling, excess verbiage, unnecessary complexity and excessive use of technical detail.

But behind the entire concept of the booklet is a premise which could be utilized by other functions for better Ventura teamwork: communicate your needs and make everyone's job easier.

The Arts and Graphics booklet is a good example of improved communication leading to better over-all performance at lower cost.

VENTURA NINE SEEKING CROWN?

Ventura personnel may have a chance to root the Ventura Division softball team to a championship Friday evening at Newbury Park High School.

The Ventura nine had a 5-1 record at presstime and all indications are that Friday's game, the season finale, could lead to the crown. Game time is 6:15 p.m. on the NPHS diamond. Admission is free.



CHECKING THE FINISHED PRODUCT
Curly Martin and Colleen Pearson review new Arts and Graphics booklet.

Generous Personnel Give \$337,160 to AID-NORAI

Generous Northrop Corporation personnel gave a total of \$337,160 to charitable health and welfare organizations over the past Northrop fiscal year through their participation in AID - United Givers and Northrop's own NORAI in-plant program.

Contributions came from all Corporate functions and personnel manning the Aircraft, Electronics and Electro-Mechanical divisions.

The fiscal year 1970 totals were the second highest ever recorded in the AID-United Givers and NORAI programs, exceeded only by a \$367,491 total during fiscal year 1969.

Since 1955 when Northrop joined the AID-United Givers

program, Northrop employees have contributed \$3,915,174.

AID-United Givers is a unique program through which employees volunteer weekly payroll deductions which go to support all charitable agencies and functions in areas where they work. It enables the donor to either select a recognized charitable organization or organizations to receive their contributions or the donor may give with knowledge that his contributions will go to aid many organizations. A portion of the monies received is designated for use in NORAI, Northrop's own in-plant effort which aids employees in distress.

Ventura Division personnel have a similar charitable function in their Dollar Donor Club.

Representatives Picked for Annual Festival in Black

Six black professional men from Northrop will serve as representatives of the aerospace industry at the Third Annual Festival in Black, to be held Aug. 21 through Aug. 24, at MacArthur Park in Los Angeles.

They are Otha "Stubby" Stubblefield, Myles Harris and Jesse Edwards, from the Electronics Division; and Austin Bordeaux, John Graham and Floyd Boggus, from the Aircraft Division. These men will join other black professionals from local aerospace companies, and be on hand to answer questions about their respective jobs.

Festival in Black is sponsored by the Los Angeles City Department of Recreation and Parks.

It is designed to exhibit to the total community the contributions of the black man to American Society. Last year the festival drew 20,000 people.

A booklet containing the names and background of each representative will be handed out at the aerospace booth, according to Roland Davidson, Corporate administrator of Equal Employment Opportunity.

"This booklet will serve as a contact point for any youth interested in pursuing a related career," said Mr. Davidson. "Then, at a later date, the youth can be put in touch with the representative, who will be happy to share his experiences and help him to plan his future."

IN BONDED ASSEMBLIES

Machine Verifies Strength, Integrity

A unique device for non-destructive testing of bonded skin assemblies utilized on the giant 747 Boeing superjet has been developed by Northrop Corporation, Aircraft Division, in conjunction with Shurtricks Corporation and has been in use for three years.

The machine uses an automatic tracking head with nine sensing probes to verify the strength and integrity of the assemblies. Readouts from these probes are obtained by oscilloscope, digital in-

dicators and graph printout.

Each two-inch square area of the adhesive bonded panels is inspected and verified for bond quality and integrity.

The previous system of testing utilized manually operated single probe Fokker bond ultrasonic testing. This method was undesirable for use on the 747 Program in that test time and operator fatigue factors were high due to the size of the assemblies.

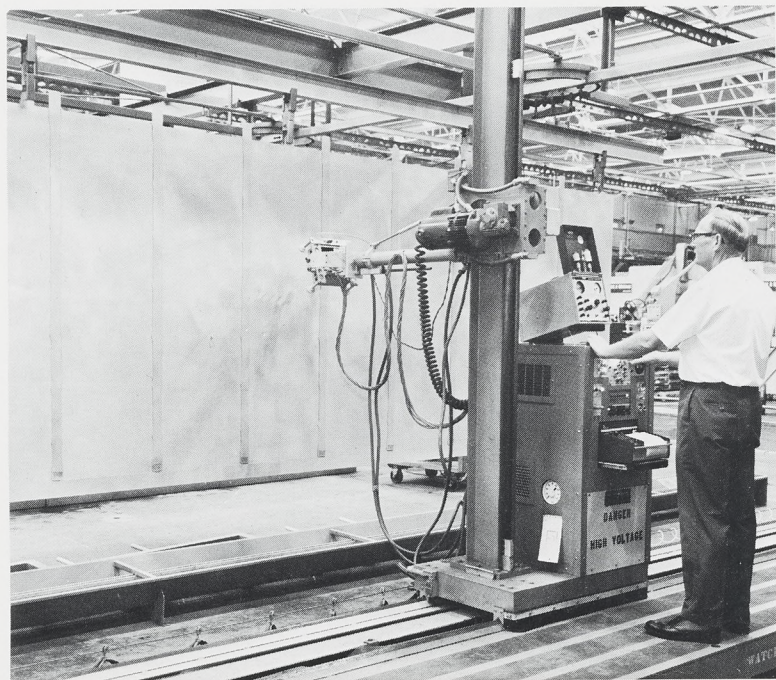
Since the automated testing sys-

tem went into operation during December of 1967, more than 7,000 panels have passed through inspection for verification, resulting in a high savings of man-hours in this operation.

Jess Veazy is the senior test operator on first shift and Dave Kennedy handles the operations on second shift.

The testing is directed by Tom Donahue under supervision of John Meehan, Quality Control manager of Metal Bond Operations.

The entire system is part of Northrop's 747 Quality Control program which is designed to insure the finest quality in workmanship and materials for the giant Boeing jetliner.



NINE SENSING PROBES FOR AUTOMATIC TRACKING
Jess Veazy programs bond tester to follow bonds on 747 assembly.



ENROUTE TO BARCELONA WORLD TRADE FAIR
Ten-mile trip to fair site required about three hours over surface streets.

GOING TO BARCELONA

Supersonic SF-5 Stars at Trade Fair

Obviously, it was a jet aircraft. But what the people of Barcelona who saw it wanted to know was what it was doing travelling through the streets and highways of their fair city.

Now They Know

Actually, the aircraft was a Spanish Air Force SF-5 being towed from the airport to downtown Barcelona, where it would be displayed as part of the exhibition of CASA, the Northrop F-5 licensee in Spain.

The occasion was the Barcelona World Trade Fair, held an-

nually in Northeast Spain, and expanded this year to include the aerospace industry.

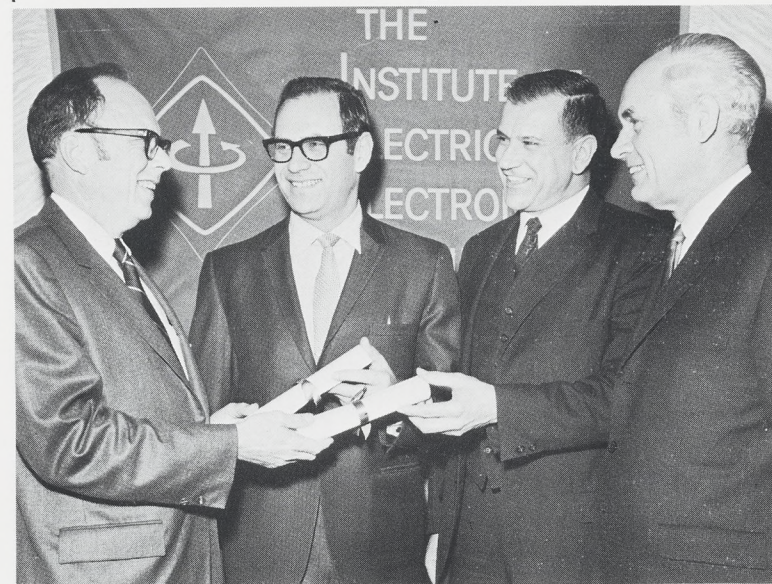
The 10-mile trip from the airport to the Fair area took about three hours, according to Senor Manuel Alonso Alonso, manager, Northrop S.A. Madrid, Spain. "Naturally," he reports, "it drew the attention of hundreds of motorists and pedestrians

who watched in amazement as the SF-5 made its way through traffic-crowded streets."

Time to Fly

Following the exhibit, the aircraft made its way once again over the streets of Barcelona to the airport. There, after a short time of preparation, it took off for its home base—this time under its own power.

IEEE's Outstanding Paper Award



NORTHROP'S Dr. George J. Friedman, second from left, and C. T. Leondes, professor of Engineering, UCLA, receive the W.R.G. Baker award for the most outstanding paper published by the Institute of Electrical and Electronics Engineers during the past year. Dr. Friedman and Professor Leondes co-authored the paper, "Constraint Theory." The paper was selected from 2,000 candidates. Making the presentation, left, is Dr. J.V.N. Granger, IEEE president. At right is Dr. George Sinclair, chairman, IEEE Awards. Dr. Friedman is manager, Advanced Systems, Electro-Mechanical Division.

NRC Softball Teams Enter County Championship Tourney

Two NRC softball teams, the Coboleros and the Talons, are now in the thick of action in the annual Los Angeles County Post Season Tournament.

The Talons have copped three first place finishes in summer league action and three in winter league action, plus a second-place standing in the 1968 Southern California Municipal Athletic Federation district playoff.

Victors in the 1969 Los Angeles County Fast Pitch Softball League at Alondra, the Talons are taking part in C-Major play-off activities.

Four of the Talon players hail from the Electronics Division. They are Sonny Herron, Harry Moromisato, Ed Ross and Jim Ryan. The remainder of the team, George Bardizbanian, Dick Gleissner, Carroll Hicks, Ron Kentfield, John Kostyo, Charley McHale, John Monson, Steve Perkins, Jim Schmidt, Erv Schott and Mike Sulentic, are Aircraft Division employees. Co-managers are Mr. Schmidt and Mr. Bardizbanian.

Players making up the Coboleros roster are Manager Tom McNeill, Fred Seale, Jim Blank-

mier, Bernie Kovach, Rick Bradley, Bill Guenther, Ken Willenborg, Harry Hudson, Warren Putnam, Pete Douty and Bill Hausch. All are from Northrop Data Processing.

The Coboleros dropped their opening game, then roared back to win seven straight and the "C" league championship at Alondra Park. They followed this with victories in two of three classification round games to enter the post-season tournament.

The Coboleros are also the defending County Champions in the "C" bracket.

Northrop F-5 Joins History's Best In Air Force Museum

Another outstanding example of a key Northrop product is slated for display at the Air Force Museum, Wright-Patterson AFB, Ohio.

The original Northrop YF-5A has been retired after seven years and 560 hours of test and development flying at Edwards AFB.

Already on display at the Air Force Museum is the Northrop P-61, or "Black Widow" as it was called during service in World War II; a Northrop F-89 Scorpion jet fighter; a Snark intercontinental ballistic missile; and original acceleration test sleds developed by Northrop for acceleration-deceleration experiments with chimpanzees.

And Another

Also destined for the museum is another Northrop product, the X-4 research vehicle designed to test the effects of rudder-only controls on a swept-wing aircraft. The X-4 is now mounted on display at the Air University, Maxwell AFB, Ala.

The original YF-5A, bearing tail markings of No. 94989, was partially dismantled and shipped from Edwards to the Air Museum via an Air Force Military Airlift Command cargo plane on Aug. 9.

A Busy Bird

The veteran aircraft will never fly again. Test Pilot Hank Chouteau performed the first test flight on July 31, 1963. During the next 30 months Northrop and Air Force test pilots at Edwards per-

formed over 400 test flights on the airplane.

Other Northrop pilots who flew the craft included Dick Thomas, Bob Elder and the late Don Papish. Brig. Gen. I. L. Branch, then commanding officer at Edwards, took a turn in the cockpit and so did Air Force Test Pilots Major Hank Gordon (now a colonel) and then-Capt. Peter Knight. The latter later set a world speed record in the X-15.

The Heritage

And the F-5 tests were fruitful. Most of the F-5's flying today have benefitted from control system development and external stores qualification tests flown during that period.

Next major testing program for the plane began in March 1966 when the craft was transferred to the General Electric Company's Edwards Test Flight Facility. G.E. used the plane as a J-85 engine test aircraft in conjunction with various engine research and development programs until mid-1969.

Waiting It Out

Since that time it has been awaiting a permanent assignment. Late last year it was realized the plane was headed for the museum. Early this summer it received its orders and Jack Farley, manager of Northrop's Edwards test facility, made sure it was properly prepared for transfer to its final home.

When the airplane will actually be on display is not yet clear due

to construction delays at the museum site.

The \$6-million museum will replace the original museum built in 1923 at McCook Field in Dayton, Ohio, six miles from the present museum site. Almost 100 retired aircraft, dating back to World War I, will have to be transferred to the new museum when it opens—hopefully early next year.

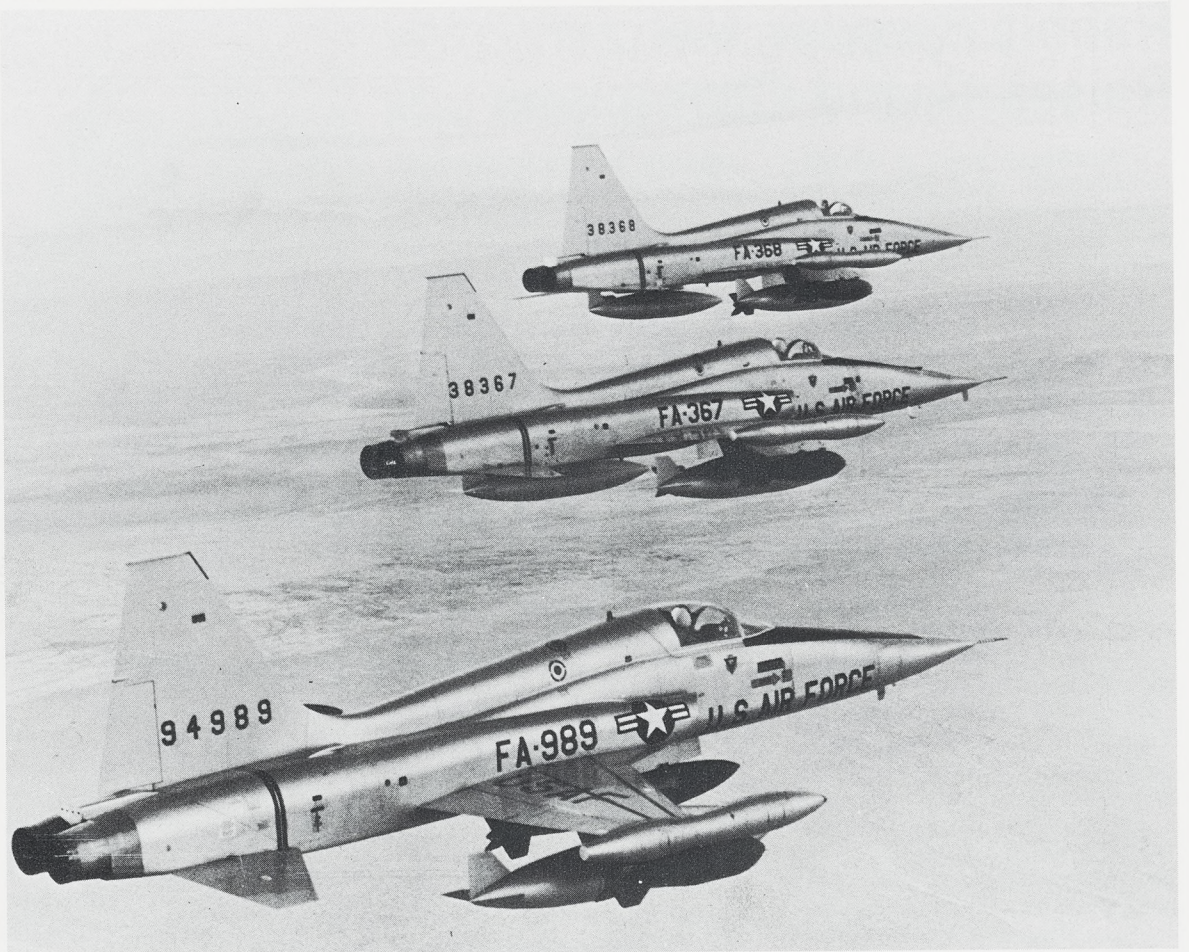
The Northrop Y-F5A will be in good company. Brig. Gen. Billy Mitchell's World War I Spad XVI, World War II fighters such as the British Spitfire and Northrop P-61, and bombers such as the giant SB-70 and 25-year-old B-29 are among the display vehicles.

Historic Wright Field, site of the museum, is a fitting place to display the memorabilia. Placement of the F-5 at Dayton will also have special meaning for Jack Wells of Northrop's Dayton Office. Mr. Wells flew the YF-5A as a test pilot.

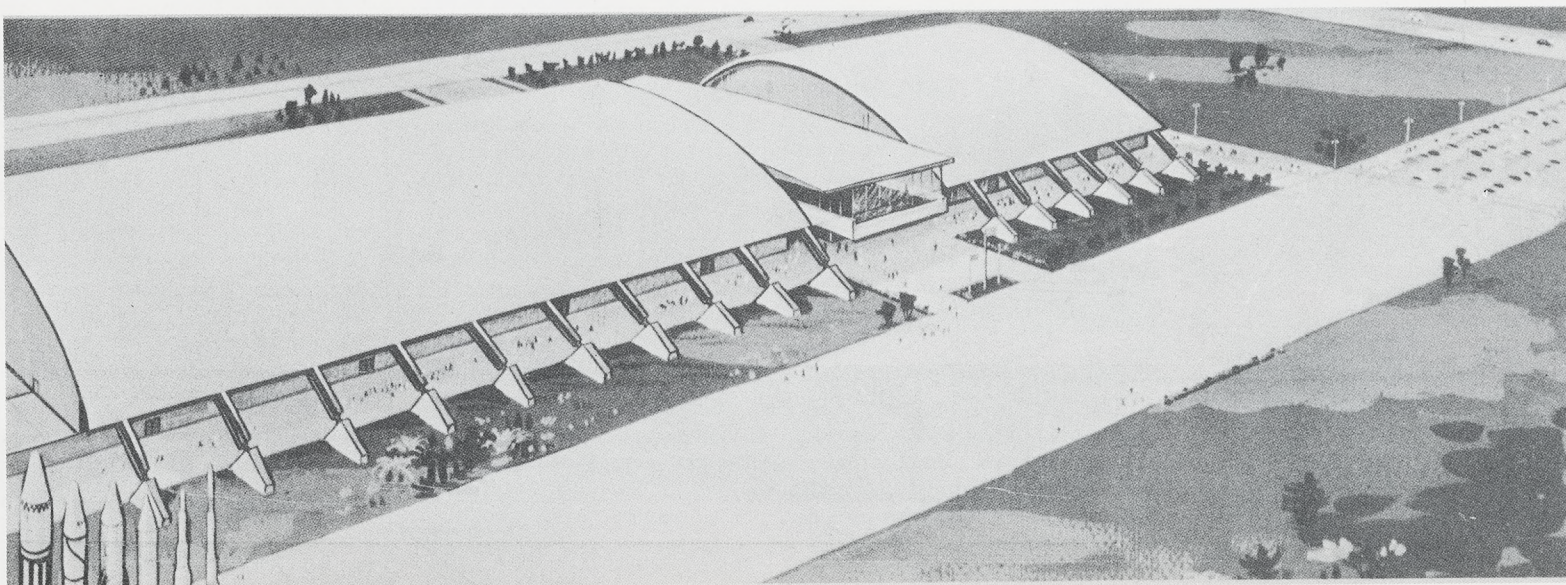
Place of Honor

The YF-5 also brings back many other memories to veteran Northrop personnel. Not the least of which is a feeling of pride in knowing that this outstanding aircraft is receiving such honors in its final resting place.

Advanced versions of this aircraft are carrying on in its tradition in 16 countries of the Free World while the grandfather of the line is finally retired.



NORTHROP F-5 with tail marking 94989 is shown in test flight formation, above, and flying solo, below, before being selected for display in the Air Force Museum. Aircraft was used extensively for testing since July 1963.



ARTIST'S rendering of Air Force Museum now under construction at Wright-Patterson Air Force Base, Ohio, is shown at left. When completed next year the \$6 million museum will house more than 100 aircraft plus additional exhibits. More than a million visitors are expected each year. The Air Force Museum Foundation, Inc., is building the facility with entirely voluntary contributions.

Rabbit Breeder Meltzer Raises Grand Champions

Pat Meltzer's hobby is one not common with other Ventura Division personnel; the Ventura drill press operator is a rabbit breeder and registrar.

A member of the American Rabbit Breeders Assn. and two specialty rabbit associations, the New Zealand Club and Rex Club, Mr. Meltzer has been registering rabbits since he was awarded his registrar's license in 1961.

Mr. Meltzer has been raising show and meat rabbits since 1954. His Shamrock Rabbitry in Tucson, Ariz., produced several grand champions before he moved to California.

For a rabbit to be registered, Mr. Meltzer says it must have a pedigree containing at least three generations of pedigreed parents. It must also meet special standards and meet strict qualifications.

Although his father raised rabbits when Mr. Meltzer was a boy in Calumet City, Ill., the Ventura man didn't become truly interested in the field until he had a family of his own and lived in Tucson.

He bought a rabbit for each of his three oldest daughters and entered them, at the urging of an acquaintance who raised rabbits, in a local show where they finished second, third and fourth in judging.

Later in Tucson he raised a grand champion buck of the New Zealand Red breed. The champion's name, Kilroy, prompted humorous conversation at the many rabbit shows throughout the southwest which Mr. Meltzer attended.

Mr. Meltzer emphasizes that he is a rabbit registrar and not a judge, although he is studying for his judge's license.

Although he hasn't found a suitable California location to raise rabbits, Mr. Meltzer is an avid rabbit man. He attends all the shows and fairs where rabbits are exhibited.

Mr. Meltzer speaks highly of his hobby. "There are over 35 breeds of rabbits and each has its own working standards of excellence for judging," he explained.

"And rabbit people are the finest I know," he adds. He has made countless friends through his hobby and urges others to join him in his interest.



Mr. Meltzer



OZZIE, LEE
He spends spare hours helping blind.

Ozzie Rudluff Devotes Time to Helping Others

Blindness, which ended Ozzie Rudluff's career with Northrop four years ago, has provided him with a new career of helping sightless people himself.

As chairman of the board of "Tapes for the Blind," he manages the operations of this non-profit organization sponsored by the Lions Club of Downey, Calif. The organization provides blank tapes for blind people throughout the world for use in education, job training, entertainment and correspondence.

"The concept of providing blank tapes for use by the blind on their home recorders was initially developed by VISTA (Volunteers in Service to America) in 1968," Mr. Rudluff said. "We just borrowed the idea for use locally."

Mr. Rudluff, who has been a member of the Lions Club for 24 years, said the service club agreed to underwrite an operating loss of Tapes for the Blind. Also each Lion volunteered to contribute at least two hours a month to helping process, package and mail tapes to users.

The Procedure

The tapes are made from data acquisition tapes donated by aerospace companies. When such tapes cannot meet the rigid reliability requirements of computers, which require accurate recording of billions of bits of data and ultra-high frequencies, the surplus tape is then made available to Tapes for the Blind. This tape is then split, rewound, erased and boxed to be mailed to potential users. The equipment, which consists of a splitter, rewinder and degasser was designed and built by volunteers from various Southern California aerospace companies.

Recordings on these blank tapes are done by various groups, such as "Recording for the Blind" which has chapters in many cities; also groups at Vacaville, Chino, and Las Padres penal in-

stitutions in California, and Lions Club members and their families.

The program is now in its second year, Mr. Rudluff said. "During the first year we mailed out 6,000 tapes. The government donates the postage and the charge of 25 cents to \$1 per reel barely covers office expense."

State Rehabilitation Centers throughout the United States are major users of the tapes. Orders also have been filled for Lima, Peru, where there are three schools for the blind. Other requests have been filled from Spain, Alaska and Egypt.

Northrop Career

Mr. Rudluff was an 18-year Northrop employee when failing eyesight forced his retirement from Tool Engineering and Planning in 1966. He immediately took an interest in sight conservation. He heads the sight committee of the Downey Lions Club which provides treatment for school children with sight problems, is chairman of the White Cane Drive, and is first vice president of the Lions Club.

Volunteer workers are always needed and any Northrop personnel in the area would be more than welcome to call Ozzie at 923-3388 or come into the office at 12007 (Suite 2) South Paramount Blvd., Downey.

In addition to helping provide tapes for other blind people, Mr. Rudluff "practices what he preaches." He is using tapes himself to learn to play the organ.

Mr. Rudluff's wife, Margie is employed at Northrop as secretary to D. M. Badger of Bonded Metal Structures Programs.

IEEE RECOGNIZES FRANK LYONS

Frank L. Lyons, manager, Electrical and Electronics Systems, Military Aircraft, has received the Aerospace and Electronics Systems Group Service Award at a recent meeting of the IEEE Aerospace and Electronic Systems Group (G-AES) in Dayton, Ohio.

Presentation was made to Mr. Lyons for "sustained service and wise counsel to the Aerospace and Electronics Systems Group's

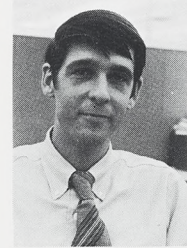
Administrative Committee."

The G-AES is one of over 30 technical groups of the Institute of Electrical and Electronics Engineers (IEEE). Mr. Lyons was active in the integration of four former IEEE groups into the present G-AES. He also served as G-AES vice chairman of the West Coast area for two years and over the past six years has served as a member of the G-AES Administrative Committee.



LYONS RECEIVES IEEE HONORS
Frank Lyons, right, and Robert Briskman, group chairman.

WE ASKED THEM—What Marvels Do You Foresee for The Year 2001?



R. R. Ladd, computer programmer, Aircraft:

By 2001 I think all transportation will be computer controlled. With computers handling the driving, transportation will be faster, safer and more efficient. Computerized transportation will include our private automobiles—if we still have automobiles then.



Pat Reynolds, secretary, Aircraft:

I'm looking forward to the development of such fast and inexpensive transportation that one can live anywhere he chooses in the United States and still be able to commute to work, like, say from New York to Los Angeles each morning.

Carol Linton, Blueprint Control specialist, Electronics:

I think we will have electric cars, people using airplanes as personal transportation, and the policemen will be back walking the beat.



John Gabaldon, sheet metal mechanic, Electronics:

I think we will have flying saucers by then. I know we will need something to relieve airport congestion.



Delfino Duran, 747 paint finisher, Ventura:

Everything will be electronic. There will be many buttons to push and not much other effort needed. As an example, newspapers will probably be replaced by a viewing screen.



Jaddis Martin, secretary, Ventura:

While I'm sure the changes will be very radical, at least two examples come to mind. Rapid transit systems will eliminate the smog problem and easily speed commuters to their destinations. Schools, also, will be far, far different than they are now. There will be extensive use of television and electronic teaching aids. The classroom, as we know it, will be eliminated.

Margie Behunin, secretary, Electro-Mechanical:

I think we will come to work on electric monorails like the one at Disneyland now to control our smog and maybe we will do our shopping by TV with samples displayed on the screen and delivery by fast messenger right to your home.



Bill Powell, accountant, Electro-Mechanical:

The use of computers will be extended to every field. The recent expansion of datamation has not reduced jobs, but has created many new ones that were completely unknown before. By 2001 the new job opportunities in care, design, programming and allied activity will be enormous.



Here's A Fish Story With A Novel Twist

Par for the course at the recent NRC Golf Club, Electro-Mechanical Division, tournament at Soboba Spring was six large mouth bass.

A golf foursome made up of Tom Albericci, Vito de Paul, Bill Middleton and Woody Woodsmall came back from playing golf with this "fish story."

It seems, they reported, that the golf course has a large pond in the center as a golf hazard. The pond is well stocked with fish and there is no objection from the club management if players — presumably those frustrated at being unable to knock a golf ball over the water — stop and fish for a while.

"And that is what we did," reports Mr. Albericci, club commissioner. "And we learned anew the truth of the adage, 'Never play the other man's game.' Mr. Woodsmall, a member of our foursome, is also NRC Fishing Club commissioner and he beat us out with six large mouth bass."

Mr. Albericci was second with four fish, and Mr. DePaul was third in the fishing part of the golf game. The fourth member, Mr. Middleton, preferred to watch his partners and — perhaps — to wonder what golf is coming to!

**IS IT NEWS?
CALL EXT. 4273
HAWTHORNE**

Classified

Classified ad service is provided free of charge to all Northrop personnel. Ads for agencies, commercial enterprises and private businesses are not accepted. The Northrop News reserves the right to edit or omit ads. Obtain ad form C67 from organization clerk and mail ad to Northrop News, 170, zone 62. Ads are limited to one item and one ad per person each issue. Deadline is noon Wednesday, one week before publication.

Automobiles For Sale	
Cadillac, 1960 convt., near new tires, \$400. 213-783-0518.	A
Mustang, 1967 Fastback, 18,000 miles, \$1,750. 213-676-2161.	A
Volkswagen, 1967 Fastback, \$1,600. 213-370-0479.	A
Amphicat, all-terrain vehicle, \$995. 213-860-8476.	A
Austin Healey, 1967 roadster, \$3,700. 714-828-2857.	A
Pickup, 1967 GMC, 1/2-ton, 305 cu. in. V-6, a/c, r/h, \$1,400. 213-634-0869, 714-847-2382.	A
Jeep, 1958 CJ6, 4x4 locking front hubs, metal top, \$800. 213-675-1834.	A
Thunderbird, 1957, p/s, p/b, a/c, rebilt. eng. & trans., \$2,300. 213-567-8725.	A
Truck, 1967 Ford, 3/4-ton, V-8, auto., \$2,000. 213-831-1988.	A
Station Wagon, 1957 Mercury, approx. 60,000 mi., \$200. 213-326-5548.	A
Porsche, 1956 Speedster, new eng., uphol., top, \$2,000. 213-631-7141.	A
Cadillac, 1965 Coupe de Ville, air, tilt/tele. whl., all power, \$2,150. 213-377-6458.	A
Rambler, 1961 Classic, 4-dr., \$125. 714-837-8963.	A
Van Camper, 1963 Ford, \$1,100. 213-831-0968.	A
Pontiac, 1966 GTO, 389, all power, new trans., \$1,425. 213-542-1832.	A
Van, 1961 Chevrolet, \$550. 213-276-0633.	A
Truck, 1956 GMC, \$450. 213-644-6161.	A
Pontiac, 1967 GTO, air, p/b, p/s, \$1,550. 213-534-3010.	A
Station Wagon, 1962 Ford, 390 cu. in., a/c, p/b, p/s, auto. trans., 9-pass., \$495. 213-532-6687.	A
Cougar, 1967 XR-7, p/s, p/b, fact. air, stereo, \$1,995. 213-323-4377.	A
Station Wagon, 1962 Chev., stick shift, 6-cyl., \$400. 213-542-2353.	A
Rambler, 1963 440 h/top, 53,000 miles, \$250. 213-644-3474.	A
Oldsmobile, 1969 Cutlass, 350 cu. in., p/b, p/s, auto. trans., air, \$2,650. 213-370-9124.	A
Chevelle, 1966 SS 396, 4-spd., tach., exhaust, p/s, r/h, stereo spkrs., \$1,500. 213-677-7433.	A
Station Wagon, 1964 Rambler American, 6-cyl., 54,600 mi., \$500. 213-377-7156.	A
Austin Healey 3000, 1960, \$550. 714-892-1401.	A
Mercury, 1964 Park Lane, 4-dr., full power, fact. air, 390 cu. in. eng., \$1,095. 213-766-8919.	A
Mustang, 1966 2-dr. h/top, 289 V-8 GT, auto. trans., p/s, pwr. d/brakes, a/c, \$1,800. 213-754-9774.	A
Dune Buggy, Volkswagen mini T, \$595. 213-672-6952.	A
Aston Martin, 1961 DB-4, \$4,000. 213-325-5705.	A
Buick, 1967, \$1,095; TR Spitfire II, 1967, \$995; Cadillac, 1966 de Ville convt., \$1,800; Continental, 1964, \$750; Barracuda, 1968 4-spd., \$1,295; Datsun w/camper, 1970, \$1,295; Oldsmobile, 1966 Cutlass, \$495; all minimum bids, Credit Union ext. 1117.	A
Station Wagon, 1963 Chev., 6 cyl., stick, p/b, a/c, \$350. 213-547-4830.	A
Studebaker, 1961 Lark, V-8, h/top, \$100. 213-327-8047.	A
Austin Healey, 1964 3000 MK III, o.d., new top, \$1,200. 213-456-3019.	A
Pickup Truck & camper, 1961 3/4-ton GMC w/1964 10' Goldcoast camper, \$1,200. 213-675-3641.	A
Plymouth, 1966 Sport Fury, full power, a/c, \$1,275. 213-754-7249.	A
Cougar, 1967 GT 390, 32,000 mi., p/s, p/b, \$1,500. 213-676-6412.	A

Household Items For Sale	
Bed, rollaway, single, \$7. 213-320-3430.	B
Washer-Dryer Comb., Philco, 220 V., white w/yellow dr., \$50. 213-328-7887.	B
Commode Chair, mobile-type Invalex deluxe, \$40. 213-324-7257.	B
Dining Room Set, table w/8 chairs, china cabinet & credenza, \$125. 213-277-2920.	B
Refrigerator, avocado, \$150. 213-631-6933.	B
Sofa, 8' beige plastic, & matching chair, \$70. 213-378-3017.	B
Freezer, Coldspot, 17 cu. ft. chest-type, 4 yrs. old, \$125. 714-826-2209.	B
Mirror, 1/4" plate glass, beveled edge, 30 x 60", 2-way hangers, \$15. 213-676-0400.	B
Dinette, 5 piece, white, \$20. 213-372-1897.	B
Ranges, 2 elec., apt. size & dble. oven, \$45 ea. 213-370-8893.	B
Bunk Beds, Metalcraft, dk. green, mattresses, \$20. 213-696-7529.	B
High Chair, \$2, other misc. furniture. 805-323-0985.	B

Household Items For Sale	
Sewing Machine, Kenmore elec., in cabinet, \$35. 213-323-4329.	B
Tables, hand-crafted distressed maple, 2 end & coffee, \$75 or sell sep. 213-343-6948.	B
Hutch Cabinet, eastern hardwood solid maple, Young Republic series, \$100. 213-325-0309.	B
Bedroom Set, maple, dble. bed, bookcase h/board, 9-drvr. dresser, \$100. 714-534-6699.	B
Sewing Machine portable Montgomery Ward, \$25. 213-370-2828.	B
Refrigerator, Hotpoint, top freezer, 16 cu. ft., coppertone, \$75. 213-837-0383.	B
Hope Chest, Lane Sweetheart, black uphol. top, walnut finish, \$65. 213-376-5551.	B

Miscellaneous For Sale	
Engine, 1963 Falcon V-8, trans., radiator & access., \$125. 213-328-9322.	C
Record Player, maple, hi-fi w/AM-FM radio, \$85. 213-870-8326.	C
Bicycle, Sears, twin, \$70. 213-675-4156.	C
Motorcycle, 1965 Honda, 90 cc, \$150. 213-372-9752.	C
Radio Control Set, for model airplane, Hallico 103, \$50. 213-377-6435.	C
Fall, frosted, human hair, never used, \$30. 213-377-2631.	C
Typewriter, portable, Remington 5, recently recond., \$15. 213-672-6079.	C
Tape Recorder, AKAI 1710, 4-track, \$125. 213-679-1936.	C
Wheels, 4 9x15 1-pc. chrome, for Jeep, Bronco, Ford pickup or van, \$50. 714-828-7873.	C
Wet Suit, custom-made, size approx. 40-42, \$40. 213-375-3790.	C
Tent, 9x18 3-rm. extr. tube frame, fabric floor, \$65. 213-675-1834.	C
Chord Organ, elect. Estey, 24 bass keys, 3 oct., \$95. 213-675-6020.	C
Dinner Ring, diamond, \$350. 213-378-1876.	C
Mini Bikes, Bandit, 3 1/2 h.p., Mustang, 3 h.p. & extra new parts, \$200. 213-644-4006.	C
Motorcycle, 1966 Greeves Challenger, 250 cc, \$450. 213-532-7175.	C
Motorcycle, Tote Gote, \$110. 213-676-9720.	C

Poodles, AKC, toys & miniatures, blacks, silvers & apricots, \$35 & up. 213-641-4466.	C
Motorcycle, 1963 Triumph Bonneville, 650 cc, newly rebilt. eng., \$850. 213-323-9598.	C
Motorcycle, 1970 Hodaka 100B, less than 1,000 mi., dirt & street equip., \$400. 213-372-4797.	C
Engine, Chevrolet, 265 cu. in. V-8, complete, \$50. 213-324-1949.	C
Rifle, 30.06 Centurion, \$70. 213-644-0866.	C
Hi-Fi, Magnavox w/Garrard changer & Eico FM tuner, \$60. 213-541-1634, 213-377-7470.	C
Home, in Thousand Oaks, swim pool, professional landscaping, 2,248 sq. ft. living area, many extras, \$52,950. 805-495-0531.	C
Boat, 13' 4" fiberglass o/wood, trailer, \$550. 213-679-7584.	C
Chord Organ, Hammond, mahogany, bench & \$200 worth of music, \$450. 213-327-3872.	C
Pups, Basenji, AKC, barkless, \$50. 714-528-1919.	C
Surfboard, custom, 6' 11", \$65. 213-833-4191.	C

Patio Umbrellas, 2 green plastic floral pattern, \$5 ea. 213-327-5655.	C
Drafting Machine, Bruning, left-handed, in orig. box, \$65. 213-675-2217.	C
Piano, uphol. cutdown upright, \$100. 213-324-7185.	C
Engine, Porsche, 1600 cc, rebilt., all access., \$650. 213-396-6739.	C
Tape Recorder, AIWA T-1003, portable, stereo, 3 1/4 & 1 1/8 ips, use up to 5" reels, \$49. 213-865-6736.	C
Boat, 18' inbd. runabout, 327 Chev., velvet dr., mahogany deck, trailer w/elec. brakes, \$2,750. 213-378-4959.	C
Sailboat, Rhodes 19, spinnaker, anchor chain & line, Seagull outbd., \$995. 213-375-8938.	C
Ham Radio, Hallicrafters & transmitter, \$100. 213-670-5927.	C
Vacuum Cleaner, G.E. hvy. duty, canister type w/complete attachments, \$30. 213-596-8947.	C
Acreage, 5 acres, Antelope Valley, east of new airport, utils., rds., \$400 dn. or \$83 dn. on land contract, \$8,250. 213-378-1026.	C
Outboard Motor, 6 h.p. Evinrude, long shaft, remote tank, less than 8 hrs. use, \$230. 805-498-4826.	C

Pool Table, Brunswick, 4 1/2 x 9, 1" slate, upgraded cloth cover, all equip., \$750. 213-671-7312.	C
Lots for mobile home, lge. 86 x 130, Yuma, Ariz., \$2,395. 213-632-2642.	C
Pup, 6 mos. old, German shepherd, female, pedigree w/papers & shots, \$60. 213-368-1269.	C
Dog, collie, 1 1/2 yrs. old, AFK reg., \$75. 213-676-6785.	C
TV, 1968 14" portable RCA color, \$150. 213-327-0053.	C
Oranges, Valencia, you pick, \$1.50 box. 213-340-2106.	C
Radio, Hallicrafters worldwide mod. SX 100, 80-40-20-15 & 10 meter bands, other access., \$90. 714-679-2090.	C
Accordion, 120 bass Milton Mann-type, case & music stand, \$175. 714-537-5921.	C
Porta-Potti, Thetford, self-contained, portable, w/perma-base, \$75. Box 1601.	C
Hi-Fi Radio/Phono combination, in blond cabinet, fidelity, \$15. 213-834-0586.	C
Air Cooler, 1968 Sears window blower-type, \$75. 213-327-1206.	C
Side Seats, folding-type, from Land Rover, \$15. 213-545-6719.	C

Miscellaneous For Sale	
Ski Boat, custom SK 17' Tempo hull, "327" 365 h.p. Chev., lge. whl. trailer, \$3,000. 714-645-1738.	C
Golf Clubs, 68 Wilson staff alum., woods 1-3, irons 2-9, p/w & s/w, \$140. 213-324-3505.	C
Motorcycle, 1967 90 cc trail Honda, \$175. 805-495-9697.	C
Dog House, redwood w/swinging doors, 29" long x 21" wide, never used, \$10. 213-371-6328.	C
Motorcycle, Kawasaki, 100 cc, 18 h.p., \$400. 213-325-8932.	C
House, view lot in Hermosa Bch., 4-bdrm., 3 baths, 2 f/places, \$35,000. 213-823-5526.	C

Wanted to Buy	
Hitch, sway control, Eaz-Lift, Reese or Derr. 213-679-7378.	D
Truck Frame & running gear, 1 ton or 1 1/2 ton Chev., 1955 or '56. 213-675-2159.	D
Paint Sprayer, small portable w/bleeder-type gun for hobby shop use. 213-377-5700.	D
Exercycle, Model 210. 213-862-3310.	D
Bicycle, girl's reparable 10-spd. 213-375-8460.	D
Tape Player, 8-track cartridge to run off of ext. amplifier. 714-642-3267.	D
Uniforms, Hawthorne Christian School, boy's size 5 or 6. 213-631-4072.	D
Fishing Equipment, young boy's in good condition, priced reasonable. 213-320-6685.	D
Sleeper Camper to fit 1966 Chev. El Camino. 213-754-3665.	D
Camp Stove, lantern, gasoline type, must be in good condition. 213-328-4646.	D

For Trade	
Turntable, Garrard, complete w/new Shure cartridge & diamond needle trade for quality matched speakers. 213-372-8171.	E

Free (To Be Given Away)	
Dog, shaggy cockapoo/terrier, male, 1 yr. old. 805-498-2307.	F
Kittens, part Siamese, 11 wks. old, box trained. 213-835-6710.	F

Rentals Offered	
Cabin, Moonridge, Big Bear Lake, 3-bdrm., 2 baths, f/place, completely furn. family only, \$125 wk., \$50 w/end. 213-326-7232.	G
Metal Detectors, Goldak Mod. 720, \$10 day; \$15 w/end; \$25 wk. 213-674-8088.	G
House, 3-bdrm., 1 1/4 bath, close to Northrop Aircraft avail. Sept. 1, \$225, Box 1602.	G
Apt, 2-bdrm., 2 baths, f/place, completely furn., maid service, Yucca Valley Country Club, \$25 day for 2; \$35 for 4. 213-375-7265.	G
Cabins, Lake Gregory & Crestline, sleep 6, make reservations now, \$25 w/end; \$60 wk. 213-391-2040.	G
Apt, unfurn., cpts, dps., gar., adults only, no pets, avail. Sept. 1, \$150. 213-676-1985.	G

Personals	
House Painting, interior, exterior wanted, good, reasonable. 213-644-8115.	L
My sincere thanks to everyone for the flowers, cards & lovely gift I received during my recent illness. KINGSETTA "QUEENIE" RUNTZEL.	
My family & I wish to extend our sincere thanks in deepest appreciation to our many friends at Northrop for the expressions of sympathy, flowers & comfort upon the great loss of our husband & father, Gill Warrick. MRS. AGNES WARRICK, LINDA & CAROL.	
I wish to express my heartfelt appreciation to all my friends at Northrop for the thoughtful expressions of sympathy. CLARA ISABELLE FREAS.	
Share expenses to fly to Reno Air Races in pvt. airplane. 213-675-7373.	
I wish to express my thanks to all my friends at Northrop for all the cards & calls received during my recent illness. JIM HOPPER.	
To my many friends in the Electronics Div., words cannot express my thanks for the wonderful gifts & congratulations on my retirement. I'll miss you all. BILL COUGHLIN.	
The family of Charles F. Thomas acknowledges with deep appreciation the kind expressions of sympathy shown during our recent bereavement. LILLIAN & CATHY THOMAS.	

For Sale or Trade	
Chevrolet, 1962 Impala SS, new paint, chrome whls., stereo, other access., \$800 or trade for motorbike, 450 cc or more, in good condition. 213-327-2330.	M
Knitting Machine, Sears Orion, dble. bed w/instructions, 5 yrs. old, \$200 or trade for good dining room set, wood, w/6 chairs. 213-372-7726.	M
Volkswagen, 1963, \$650 or consider trade for early VW bus. 213-883-4593.	M
Volkswagen, 1966 Squareback, 28,000 mi., \$1,400 or trade for VW sedan w/auto. trans. 213-679-6982.	M
Display Cases, 18" w., 24" h., 6" d., plastic, some illuminated, \$3-\$7 or trade for shotgun. 213-941-1865.	M
Dinette Set, 6-pc., gold & white, \$30 or trade for patio set in similar condition. 213-374-7416.	M

Rides and Riders	
Rides Offered	
8 a.m. — 4:42 p.m.	
Whittier Blvd.-Colima Rd.-Painter Ave., Whittier, additional members for car pool. Calman Rosenkranz, Aircraft ext. 1020, 213-696-3467.	
Lakewood & Imperial Blvd. Morris Brown, Aircraft ext. 4487, 213-861-8508.	

WA6YNT Receives QSL Marking 1,000th Contact

The NRC Radio Club, operating Station WA6YNT, has just received its 1000th QSL card verifying contact with other amateur radio stations.

The club received its first card soon after it was organized in March 1964. The first contact was with an amateur station near Disneyland. The 1000th contact was with Station 6Y5ET in Jamaica.

The club's first commissioner, Dave Weiss, made the initial contact and the first card is still on display in the club's radio shack near the cafeteria at the Anaheim facility. It is not a regular printed QSL card, but is a picture postcard of the Disneyland monorail with the station's call letters, W6GZK, written over the photograph.

In addition to making 1000 station - to - station contacts, the club also received a certificate from the Amateur Radio Relay League for working 100 separate countries of the world and another certificate for talking with stations in all 50 states of the Union.

Marty Gregor, who was present when the first contact was made by the newly formed radio club, recalls many odd contacts

made by the club during its 6 years' operation.

"In talking with operators from Afghanistan to Zambia (a newly formed African nation), we have had such unusual experiences as talking to a man who was broadcasting from his car on an English highway, talking to a blind operator from a School for the Blind in New York state, picking up the Queen Mary off South America during her final voyage before coming to Long Beach, and talking with the Swiss Navy."

How's That Again

Land-locked Switzerland is not usually thought of as a maritime nation, but the club learned from its talk with the ship that the little European mountain country does operate a navigational research ship at sea.

"As these examples show, working with WA6YNT, is always an adventure," Club Commissioner Julian Bloom said. "When we turn on the set each day at noon, we have no idea where in the world — literally — we are going. Incidentally, there is always room for new members. We'd like to have you join us. We'll help you learn code and prepare for your license."

EDITOR'S NOTEBOOK

Here are more names for the growing list of Northrop employees who have selected the Boeing 747 superjet for their personal travel. Ventura Division's Frank Nesemier and Louis Raiola were aboard a July 31 flight from Chicago to Los Angeles. And Ruby LaBorda, Ventura, flew from Hawaii to Los Angeles in April. The Aircraft Division's Dick Clarke and his wife were aboard a July 12 Continental Airlines flight, Honolulu to Los Angeles. The Corporate office's Roger A. Skinner, Jr., reports he, his wife, Ruth, and daughter, Brenda, were aboard an earlier (June) flight from Tokyo to Los Angeles. "We had some problems, like faulty air conditioning, no movies on the midnight flight, delayed takeoff, but despite it all we loved the 747 and look forward to flying it again," Mr. Skinner notes.

And a very gracious tip of the hat goes to our most novel Northrop 747 travelers to date—Nick and Irene Ranill. They celebrated their 30th wedding anniversary in May with a 747 Pan Am flight to Hawaii. Mr. Ranill, a materials estimating group leader at the Electro-Mechanical Division, has turned out many quotes on materials used to build 747 stringers at Anaheim. Enroute, Mr. Ranill presented his wife a pearl ring as an anniversary gift. "The 747 ride was much like being aboard a train with plenty of room to get up and walk around," Mr. Ranill said. "It is a real fine airplane, one we can be proud of, since we at Northrop contribute so much to its success." And during the trip the Ranills could not help but contrast it with their first wedding anniversary trip. They drove a six-year-old Ford to Friendship Gardens at Michigan City, Ind. That was in 1941. The Ranills were married in Pennsylvania in 1940.

Pan Am, the first airline to fly the 747 in commercial service, continues to make news with the big superjet. On July 1, when Pan Am inaugurated 747 service to Amsterdam, the airline entered a balloon in the 24th International Holland Balloon meet, aptly named "The 747." The balloon was a historic one which was originally used in the film "Around the World in 80 Days." A Pan Am sales director and a Boeing engineer and balloon pilot were at the controls.

Rides Offered	
8 a.m. — 4:42 p.m.	
Los Posas & Arnell, Camarillo. Willing to meet ride in Camarillo, Newbury Park, or Thousand Oaks area. Connie Colella, Aircraft exts. 2521, 2522, 805-482-1816.	
Rides Wanted	
8 a.m. — 4:42 p.m.	
Whittier Blvd.-Colima Rd.-Painter Ave., Whittier, additional members for car pool. Calman Rosenkranz, Aircraft ext. 1020, 213-696-3467.	
Los Posas & Arnell, Camarillo. Willing to meet ride in Camarillo, Newbury Park, or Thousand Oaks area. Connie Colella, Aircraft exts. 2521, 2522, 805-482-1816.	
Lakewood & Imperial Blvd. Morris Brown, Aircraft ext. 4487, 213-861-8508.	

NORTHROP NEWS

Vol. 28

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Editor-in-Chief, Bryan Weickersheimer. Editors: Tony Cantafio, Electronics Division; Ivy Edmonds, Electro-Mechanical Division; Peter Toll, Ventura Division; Rosemary Hussey, Business Affairs.

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No. 16

SAFETY—THEY DO MORE THAN TALK ABOUT IT

"Safety is everybody's business" could well be the slogan for the many-faceted safety program at the Ventura Division.

While safety properly receives most emphasis in the Production Operations areas, even engineers and secretaries are touched by the program.

Established under a Division Standard of Procedure, four special safety committees constantly watchdog the entire Ventura facility for situations or working conditions which need improvement.

The committees, which meet monthly, are the Special Materials and Devices Committee, Workman's Safety Committee, Supervisor's Safety Committee and

General Safety Committee.

The DSP calls for a safety program designed to provide optimum safety and health conditions and standards for all personnel with compliance of federal and state laws.

Prevention

The committees work to eliminate hazards of defective machines and equipment and for installation of adequate safety devices, regularly inspect work areas and promote good safety practice and carry out preventive investigations.

The DSP also covers safety training and education, enforcement of safety rules and good housekeeping which leads to a reduction of accidents. Appre-

hending parking lot speeders is a good example of the enforcement category.

At the top of the ladder of safety committees is the General Committee chaired by Lauren Persons. On his committee are Al Binsacca, Clark DeSpain, Bob Parsons, Rex Fairless, Charles Simmers and Gary Bucsis.

Another important member is Ben Knell, safety engineer at Northrop's Aircraft Division. Since Ventura has no safety engineer, as such, Mr. Knell attends the meetings and offers professional evaluations.

The Supervisors' Safety Committee's reports and recommendations are turned over to the General Committee for action.

Chairman of the Supervisors' group is Ted Szostek. Other members are Clyde Corder, John Steman, Dick Shewmaker, Bob Preucel, Bob Parsons and division nurse Elinor Eckels.

Mr. Szostek also chairs the committee of the next level, the Workman's Committee. In that group are Marie Bartz, Paul Friedman, John Howorth, Doug Main, Stan Nutter, Swede Sandell and Anthony Viano.

Important Groups

The Workman's Safety Committee keeps an eye out for conditions at the production working level. It is augmented, as is the Supervisors' Committee, by special "safety monitors" in areas where 10 or more people are

concentrated in a production area.

Dealing with such items as the operation and storage of volatile chemicals and solvents, such as paint or even JATO bottles, is the Special Materials and Devices Committee.

Taking Part

That committee is chaired by Al Binsacca. Other members are Shel Greenberg, Moss Stribling, W. G. Hacche, Earl Morris, Joe Pulver, John Steman, and John Baldonado.

Round badges bearing a green cross identify these division personnel who are especially safety oriented. They are always on the lookout for ways to make Ventura the safest division in the Northrop Corporation.

Lawrason Is 4th Sloan Fellow

Selection of Paul Lawrason for participation in the Stanford Sloan Program makes him the fourth member of Ventura Division management to be honored as a Northrop Sloan Fellow.

Mr. Lawrason will be following Division General Manager Welko Gasich (1967), Robert Jennings (1968) and Charles Hass, who completed the program in June of this year.



Mr. Lawrason

Marking his 17th year with Northrop next October, Mr. Lawrason has been specializing in target drones. He was an engineer for 13 years before being named program director for Aeronautical Systems, his present post.

Background

He is a graduate of Michigan State University and has taken extension courses at the graduate level at UCLA. He has also completed the three-month Defense Weapons System Management course at Wright-Patterson Air Force Base, Ohio.

Mr. Lawrason will leave the Ventura Division Aug. 28 and begin the nine-month Sloan program at Stanford in mid-September. The program concludes in June 1971.

Rod & Gun Club Fishing Trip Will Send 16 Seeking Albacore

Time for Ventura Division personnel—at least 16 of them—to get that deep sea fishing tackle out of the garage.

The second Ventura Division Rod & Gun Club deep sea fish-

CORRECT ADDRESS IS IMPORTANT

Have you moved lately, changed your mailing address or telephone number?

Personnel Records is stressing the importance of having a current mailing address and telephone number on file with Northrop for use in forwarding important information and documents.

Contrast For A Hot Summer Day



REMEMBER WHEN it was so chilly in the morning there was frost on your windshield and Ventura personnel could see snow on the Topa Topa Mountains above Santa Paula? Just something to bear in mind when that Conejo Valley thermometer hovers near the 100-degree mark these days. (Photo by Jim Woods)

REC CLUB PICNIC

Family Fun Day Set for Aug. 29

A whole day of family fun is in store for Ventura Division personnel and their families Saturday, Aug. 29, at the Ventura Division Recreation Club's picnic.

Food, games, swimming and entertainment will highlight the activities at California Lutheran College in Thousand Oaks from 10:30 a.m. until 5 p.m.

Included in the nominal cost of a ticket will be lunch, soft drinks, ice cream and popcorn, door prizes, swimming in the big Cal Lutheran pool, picnic games, a magic show, a wandering clown and other entertainment.

Members of the fairer sex will display their skill in a nail-driving contest and youngsters will be able to flaunt conventional table manners in a pie-eating contest.

Under the guidance of Rec Club President Dorothy Prychoda and Special Events Chairman Bill Dierker, the picnic promises to be a fun-filled success.

Tickets are available daily in the Rec Club office, Room E-123, from 11 a.m. to 1 p.m. They are also being sold on the plant mall from 11:20 a.m. to 12:45 p.m. each Tuesday and Thursday.

Costs are: Under six years old, free; 6-16 years, 25 cents; 16 and up, including employees, 50 cents. Guests who are 16 and older and not members of the employee's immediate family will be admitted for \$1.

Name tags, which must be

IS IT NEWS?
CALL EXT. 1425
VENTURA

He Closes A 16-Year Career Soon

Michael Kravitz closes a 16-year Northrop career Aug. 28 when he retires from the Ventura Division and his job on the Maintenance staff.

Mr. Kravitz, who began working at the former Radioplane Division in Van Nuys, has done "a little bit of everything" in his role as a maintenance man. And it has been very enjoyable, too.

"I've liked the company and the people," he told the Northrop News. "The company has been good to me and I have no complaints."

Although his retirement plans aren't definite, Mr. Kravitz plans to spend more time with his wife of 35 years, Anna, and his eight grandchildren.

"I love to hunt and fish, too," he adds.



Mr. Kravitz

QUAIL WALK

Ventura Division Rod and Gun Club will conduct a quail walk in September on the division grounds. Watch the Northrop News for further details.

On The Job...



MARGARET NOVAK has spent the last four of her 17 Northrop years assembling fuel tanks for the Northrop F-5 and T-38 aircraft. A son, Mike, is a former 15-year Northrop employee.

NORTHROP NEWS

VENTURA DIVISION EDITION

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Vol. 28, No. 17

September 2, 1970

VENTURA DELIVERS 100TH SET OF 747 FAIRINGS



RECEIVING TREASURY DEPT. HONOR

Ventura's Don Warner, left, with Treasury's Roberts Hughes and Corporate's M. E. Beyrodt, right.

Treasury Honors Venturans for Big Bond Effort

A pace-setting performance by Ventura Division personnel in the recent U.S. Savings Bonds program has earned special praise from the sponsoring U.S. Treasury Department.

Roberts V. Hughes, of the Treasury Department's Los Angeles office, presented the coveted Minute Man Flag to Don Warner, manager of the Engineering department, who accepted on behalf of Venturans and General Manager Welko E. Gasich.

Also on hand for the presentation was Marvin (Red) Beyrodt, Corporate campaign chairman. Tom Tapper, Ventura Division program chairman, was unable to attend.

Participating Ventura Division personnel led all other Northrop divisions in the level of new or additional bond purchasers. Ventura increased from 85.4 per cent to 91.6.

Over-all, the Northrop Corporation made significant steps in increasing participation as company-wide totals showed 81.1 per cent at the beginning and 88 per cent at the conclusion. The Aircraft Division, from 86.3 to 91.3 per cent, followed Ventura.

THIRD THREE-DAY WEEKEND COMING

Another long holiday weekend is at hand for Northrop's Ventura Division personnel.

Monday, Sept. 7, is Labor Day, a paid holiday for Northrop employees. Regular work shifts will be suspended Monday and will resume Tuesday, Sept. 8.

The long Labor Weekend is the third three-day holiday period to be enjoyed by Northrop personnel this year.

REC ROUNDUP

Softball Fortunes Fall

The star of the Ventura Division Rec Club-sponsored softball team fell as fast as it rose.

The Ventura softballers finished second in the Conejo Recreation & Park District's fast-pitch B League with a 6-4 win-loss record.

After a dismal 2-8 record in qualifying rounds, the Venturans jumped to the league lead with a 5-1 record at the midway point. But the success was short-lived. The team lost two to Burroughs (the eventual league champ), was drubbed 13-1 by Capitol Records, and bowed 4-3 to State Farm.

"We were disappointed, of course, but we still feel it was a good year," said co-manager Claude Vincelette. This year's team finished 8-12 over-all compared with last year's club that was 0-10 in league play and 5-15 over-all.

The club's main problem was its inconsistent offense. Several times the bases were loaded with no outs but only one run could be mustered. There was a bright spot, though.

"Dean Wolf was the only steady hitter we had," noted the other co-manager, Ralph Reeves. "Dean finished the season batting over .400 and was fourth-ranked in hitting at the halfway point."

Already the men are looking forward to next year. "We know we can do better. But, like the Dodgers, we need that home run hitter," said Mr. Vincelette.

Bowlers Sign Up

Three Ventura Division Recreation Club-sponsored evening bowling leagues are now signing up participants for Mixed Four-some competition beginning next week.

Pleasant Valley, Oxnard residents can join the Camarillo Bowl League which will play

each Thursday beginning at 6:30 p.m. Hank Widmer, ext. 341, or Paul Potter, ext. 1211 can provide more details.

Conejo Valley personnel may want to join the Thursday evening league at the Conejo Bowl. Tanet Palmer, ext. 307, is the contact for that league.

Finally, San Fernando Valley employees can participate in a Wednesday, 6:30 p.m. league at the Woodlake Bowl in Woodland Hills. Les Myers, ext. 228, is the man to see for that league.

Jones Top Golfer

Ventura Division Golf Clubber Bob Jones played like his famous golfing namesake and turned in the best score as golf clubbers played the Ojai Country Club last month.

Mr. Jones shot a 65 to win the A Flight as Bill Quick, Jr. shot a 67 for second. Ron Aitken edged Buck Gilmore, 68.7 to 68.9, for third.

Winning the B Flight was Al Culty with a 68. Sam Westfall followed closely behind with a 68.7 and Bill Willer was hot on his heels with a 69.5.

C Flight victor was Dutch Youngers who came in at 74. Ralph Bosco's 78 earned him second place and Ed Sheridan fired an 80 for third. Lois Sheridan's 76 won the Ladies Flight as Sue Wiscaver was second with an 80.

Mr. Aitken hit the longest drive of the day. Chuck Brune, Jim Lasley and Mr. Aitken won the closest-to-the-hole competition on three-par greens.

Reservations are still being accepted this week for the club's annual two-day tournament, Sept. 26-27, at the Circle R Ranch Golf Resort at Escondido.

Greens fees are \$12 for two days, electric cart fees are \$7 (See REC ROUNDUP, page 6)

Maurer Lauds Personnel In Jumbo Jet Milestone

Another landmark has been reached by Ventura Division Production personnel as the 100th shipset of 747 wing-to-body fairings was sent this week to Boeing's Everett, Wash., plant for final assembly.

"This is another milestone for the Ventura Division," commented 747 Division Program Manager Larry Carroll. "Ventura Division personnel can be proud of their contribution in building the largest commercial jet aircraft," he added.

Special ceremonies marked the Sept. 1 sendoff of the 100th 747 shipset. After being loaded on its special van the shipset was marked by large signs which made the "100th" distinction clear. The van was sent on its way by people who built the fairings as well as people who directly supported the production.

Mementos

The several hundred people assigned to the 747 Program received souvenir 747 pins as a memento of the historic event.

M. A. Maurer, vice president, Production Operations, spoke highly of the Production personnel and their accomplishments in a congratulatory speech at the loading dock.

Delivery of the 100th shipset marks the halfway point in the current Boeing 747 contract. The first shipset left the Ventura Division May 9, 1968. Deliveries in the current contract will take place through mid-1972.

Final assembly of the 350-passenger 747 jumbo jet takes place at Boeing's Everett facility. It takes approximately 40 hours for the shipset to be transported from Ventura to Everett.

Northrop's Aircraft Division is responsible for one of the largest metal structural assemblies on the 747 and the Ventura Division for

the largest fiberglass assembly. The Aircraft Division produces the 153-foot-long main fuselage sections. That division's 100th shipset was delivered, by rail, about a month ago.

Delivery of Ventura's 100th shipset brought forth many memories of the young project. New production, organization and operational changes have contributed to reducing the 747 costs.

By bringing down the so-called "learning curve" of the program the employees have helped make the Ventura Division more competitive in a currently tight-fisted economic market.

Suggestion Pays Wayne Moulder A Bonus of \$94

Wayne Moulder, of the 747 Tool Preparation and Metal Spray unit, tops the latest list of Ventura Division suggesters.

Mr. Moulder received \$94 for devising a less costly method of painting wing fairing tools for the 747 jumbo jet.

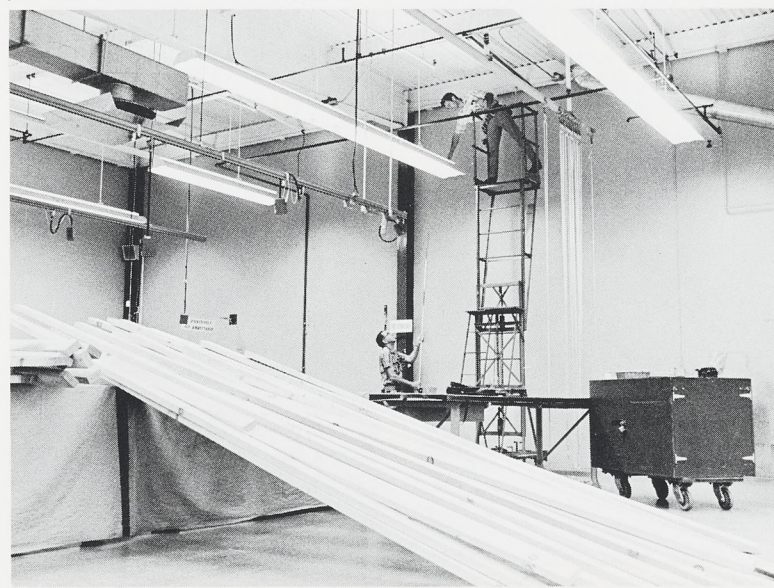
Bill Merrick received \$33 for a method of eliminating blind rivets on the aft section of the MQM-74A.

Bill Adams received a \$15 award for suggesting a form alteration to reduce overhead, and Norbert Riesgo and Cliff MacLean earned \$13 bonuses for a joint idea to increase oven production in Plastics Fabrication.

Receiving \$10 awards were Tony Mata, Gene Colburn, E. L. Snook, and Ted Anderson.

The Ventura Division Suggestion Awards program is part of Northrop's on-going campaign to reduce production costs while maintaining high levels of quality.

Readying New Quarters



MAKING ROOM in Paralab for new Mark 30 underwater target engineering offices, Bert Stohlman hands an electrical fixture up to Matt Newcomb. New offices will put Mk. 30 engineers closer to Mk. 30 production team at Ventura.

Major Networks Evaluate Page's Study on Program Distribution

Officials of the three major television networks are evaluating a study conducted by Page Communications Engineers which shows that the three networks could reduce program distribution costs 25 to 35 per cent annually with a new system of domestic satellites or specialized microwave.

Page, the Washington D.C.-based Northrop subsidiary, conducted the cost and quality-oriented study at the request of the networks. Present distribution

techniques will cost the networks an estimated \$70 million this year (including a 40 per cent increase since last October) compared to \$50-55 million projected for the new system.

The Page study also took into consideration the needs of the corporation for public broadcasting, designing each system with sufficient capability to interconnect non-commercial stations in all cities with commercial network affiliates. Radio network distribution was also included.

Full cost and performance estimates were detailed in the study. The \$55 million annual figure includes amortized capital investment and other expenses.

Either system could be operational three to four years after all necessary government permits are granted. Approximately 160 earth stations would be involved along with up to 25 satellite launches over 20 years.

On the other hand, the microwave system would require some 600 towers and encompass more than 18,000 "system miles."

"The network organizations are undertaking a review of the comprehensive report to determine what further steps are advisable," according to a network spokesman.

UCLA Bestows High Honor on Keith Gordinier

Keith E. Gordinier, son of Northrop's Carl J. Gordinier, has received the Chancellor's Intern Fellowship of the University of California at Los Angeles.

Announcement of the honor by Chancellor Charles E. Young said that the award is the highest distinction the University can bestow on a graduate student.

The young man was recommended for the honor by the Department of Geology at University of California, Santa Barbara. He will receive a first-year fellowship, two years as a teaching or research assistant, and if advanced to candidacy for the Ph.D. degree within three years, a one-year dissertation fellowship.

Mr. Gordinier's father is with the Aircraft Division's Test Operations.



Keith Gordinier

FOR QUEEN'S PARTY

Pasley Chooses Top Hat, Morning Coat

Ernie Pasley, Field Services technical representative in Coultport, Scotland, given a choice of formal attire to wear at Queen Elizabeth's Garden Party at Holyrood House, Edinburgh, chose a top hat and morning coat instead of Highland kilts.

Mr. Pasley is stationed at the Royal Navy Ammunition Depot to support the Northrop-manufactured DATICO MTRE in checking out the Royal Navy Polaris missile.

The Queen and Prince Phillip hold one garden party a year in Scotland. Mr. Pasley and his wife, Pat, were among the guests invited.

In a letter to Millie Guolo of Support Services, Electro-Mechanical Division, Mr. Pasley wrote, "We stood for the better part of an hour next to the Royal Family as different people were introduced to the Queen. Tea and cakes of all kinds, ice cream and cookies were served. The Queen's Bowmen acted as her honor guard. The Bowmen, in Highland dress carried unstrung bows which were used as staffs for the function."

"The Queen wore a robin's egg

blue spring coat. Princess Anne wore a canary yellow spring coat with a turban-type white and yellow hat. Prince Phillip wore a morning suit. Prince Charles wore the same with one exception — a psychedelic blue tie.

"Prince Charles is shorter than I had envisioned and the Queen is quite short. Princess Anne's

coat was cut about two inches above the knees, duplicating the younger set.

"My impression is that the Royal Family is a very close family and that no finer persons could represent the Royal image."

"We were very impressed by their friendliness and casual manner at this function."



DRESSED FOR QUEEN'S GARDEN PARTY
Mr. and Mrs. Ernie Pasley at Edinburgh, Scotland.

A Pennant for Northrop



NORTHROP CORPORATION employees have earned the right to fly the U.S. Treasury Department's Minute Man flag for their outstanding participation in the purchase of U.S. Savings Bonds through payroll deductions. W. C. Eller, left, California marketing director, U.S. Savings Bonds Division, Department of the Treasury, presents flag to George Douglas, Northrop senior vice president—Administration.

Test Fleet Superjets Join Regular Airline Service

Remember the first five Boeing 747 superjets to roll off the assembly line? They comprised a test fleet of aircraft which carried out the most extensive flight test program ever undertaken in commercial aviation history, logging more than 1,400 flight hours.

The first production aircraft wore the livery of Boeing. Three of the aircraft wore Pan American World Airlines markings and one was decked in Trans World Airlines colors.

Two of the Pan Am aircraft and the TWA aircraft have now been delivered to the customers to begin regular passenger service. The fourth is scheduled for delivery soon.

A quick check of the status of the 747 program shows that 63 aircraft have been delivered to 11 airlines. These aircraft have logged well over 10,000 revenue, or passenger-carrying flights, for a total of well over 10-billion-seat

miles.

While the one millionth passenger to fly the Boeing 747 boarded just a few short weeks ago, on July 16, the two millionth passenger was expected to board before the end of August. And the five millionth passenger will fly the 747 before the end of the current year.

Credit Union Issues Report

A mid-year financial report issued by the Northrop Credit Union indicates ample funds on hand for Northrop personnel interested in buying new or used automobiles, travel trailers or mobile homes, or in consolidating their debts in a single loan.

The report compared the first seven months of 1970 with a similar period in 1969. It shows gross assets are up to \$8.7 million, compared to \$8.2 million in 1969; savings are up to \$8.1 million over \$7.6 million in 1969; loans have decreased to \$6.6 million compared to \$7.06 million in 1969. The number of borrowers, 7,812 in 1970 and 8,747 in 1969, and depositors, 10,165 in 1970, and 12,312 in 1969, reflect a reduction in employment.

"Our net profits for the first six months of 1970 are comparable to those for 1969," said Mary Delaney, treasurer. "We have over \$2 million invested in government securities and certificates of deposit, part of which we would prefer having loaned to members. Our profits will continue to be outstanding as long as we keep our money loaned to employees."

NRC OFFERING ICE SHOW DUCATS

The 1971 production of Ice Follies is coming to The Forum in Inglewood this month and NRC has acquired 500 of the best seats in the house for resale, at discount rates, to employees.

Northrop tickets are good for the 5 p.m. Sept. 12 performance. Regular \$6.25 tickets sell for \$4 for adults and \$3 for those 16 years of age and younger.



NEW 425th TFFS COMMANDER VISITS

Lt. Col. Roy Holbrook, left, with J. O. Morris, center, and L. F. Begin.

Skoshi Tiger Veteran Takes Command of 425th TFFS

The new commander of the USAF's 425th Tactical Fighter Training Squadron (TAC), Lt. Col. Roy L. Holbrook, is a veteran Northrop F-5 pilot and former member of the Skoshi Tiger evaluation team in Vietnam.

Col. Holbrook visited the Aircraft Division two days last month to renew old acquaintances and receive briefings on current and future Northrop programs.

The 425th TFFS, based at Williams AFB, Ariz., trains allied and USAF pilots and maintenance personnel preparing for flight and maintenance duties with F-5-equipped forces around the world.

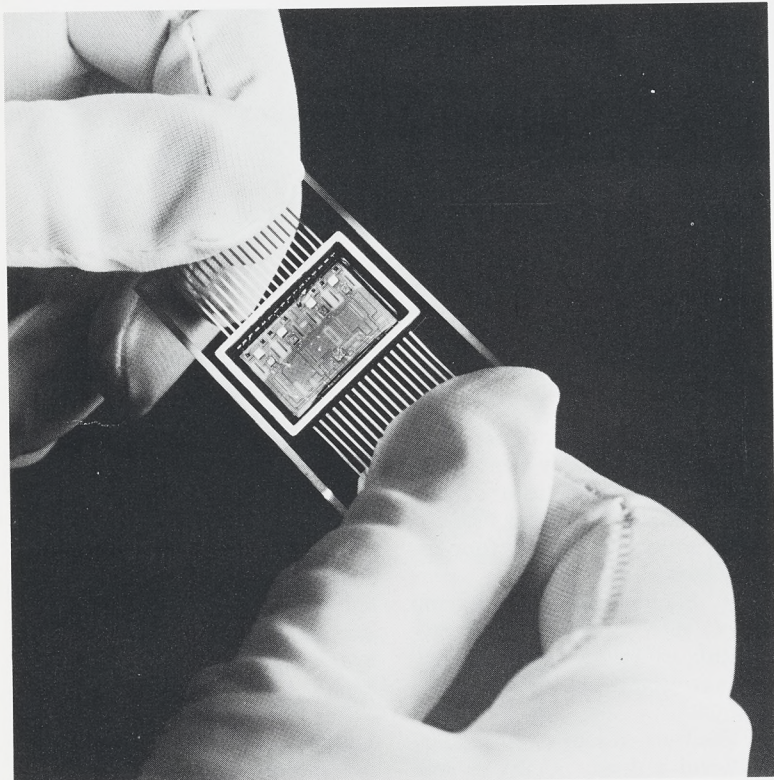
Col. Holbrook has logged more than 350 hours at the controls of Northrop F-5s. He was a member of the original USAF Skoshi Tiger evaluation team in Vietnam, serving as a flight commander. Between August 1965 and May 1966 Col. Holbrook flew 190 missions in the F-5 in Vietnam and was advanced in rank from captain to major during the period.

Following his tour of duty in Vietnam, Col. Holbrook moved to Taiwan as a USAF advisor to the Chinese Air Force. Since July 1969 he has served as operations officer for the 418th Tactical Fighter Training Squadron at Luke AFB, Ariz.

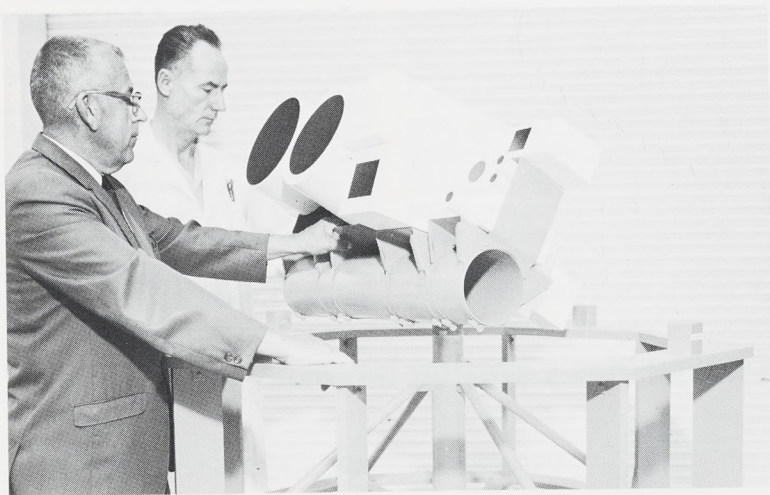
During his briefings at Northrop Col. Holbrook met with Col. R. P. Fuqua, the Northrop AF-PR, and received special briefings by Dan Darnell, Jr., manager of Customer Requirements; R. C. Young, manager of Field Service; C. K. Voss, manager of Pacific Region, Current Aircraft Systems Requirements; D. L. Hirsch, manager of Future Pilot Training Systems Studies; T. R. Han-

A Photoscope Visit To Northrop Electronics

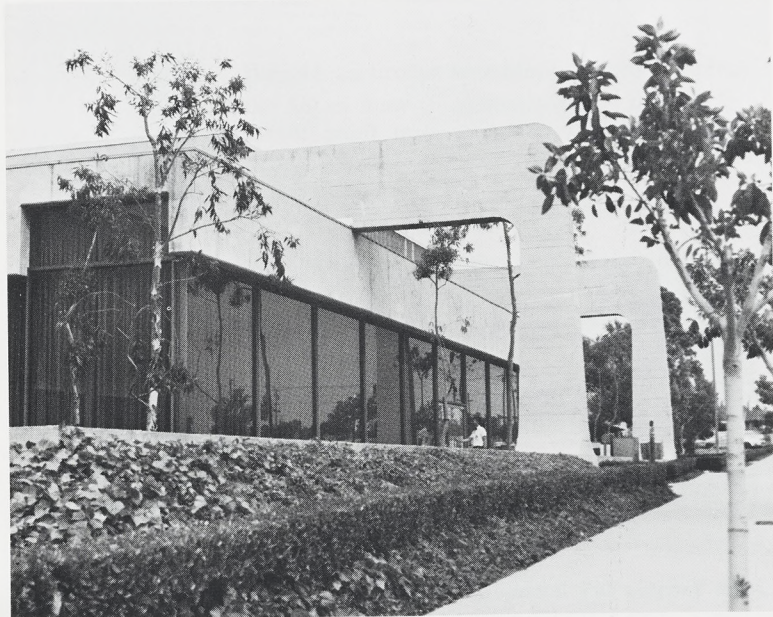
(Second of a Series)



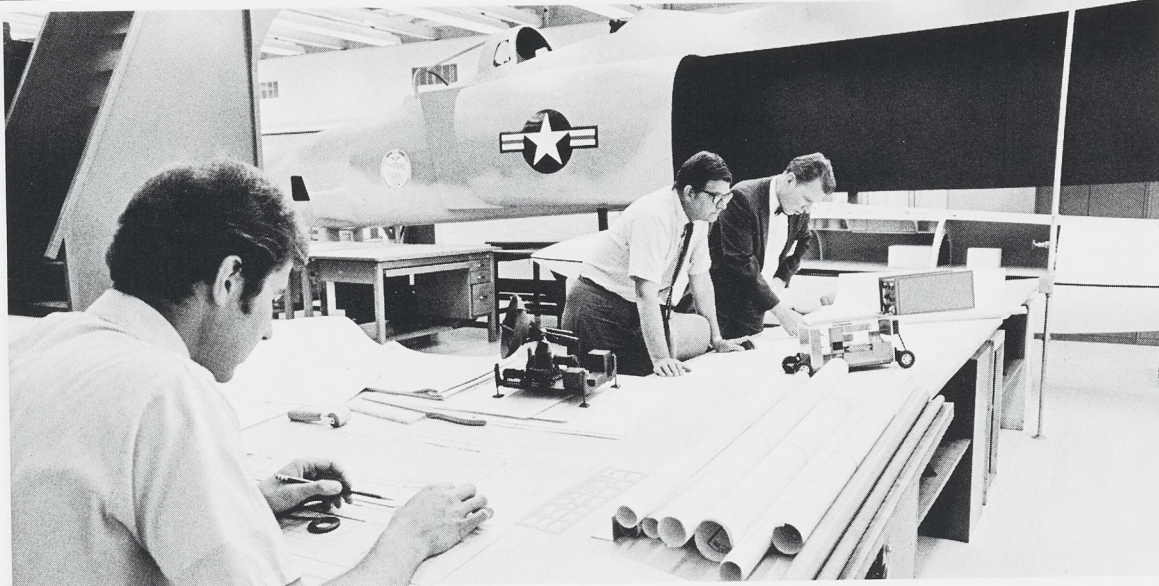
QUAD SENSE AMPLIFIERS such as this one are used in Electronics Division's latest computer, the NDC 1070. As one of the largest special purpose computer builders in the world, Northrop depends on miniaturized circuits, and recently developed an in-house capability for their production.



LYNN KAUFFOLD, left, and technician view model of scan platform built by Electronics for use on the Mariner Mars '69 mission. Current projects in the division's Space Systems section include work on the Circadian Periodicity Experiments Program and the Orbiting Primate experiments, both of which will provide valuable information needed to support future long-term space flights by U.S. astronauts.



THE HUB OF ACTIVITY in the Electronics Division is here in the Hawthorne facility, sometimes referred to as the Johnson property. As the home of the Navigation department, this building is designed so that the office and other interior areas may be easily arranged, providing the most flexible, efficient activity areas for the design, development, test and fabrication of electronics products.



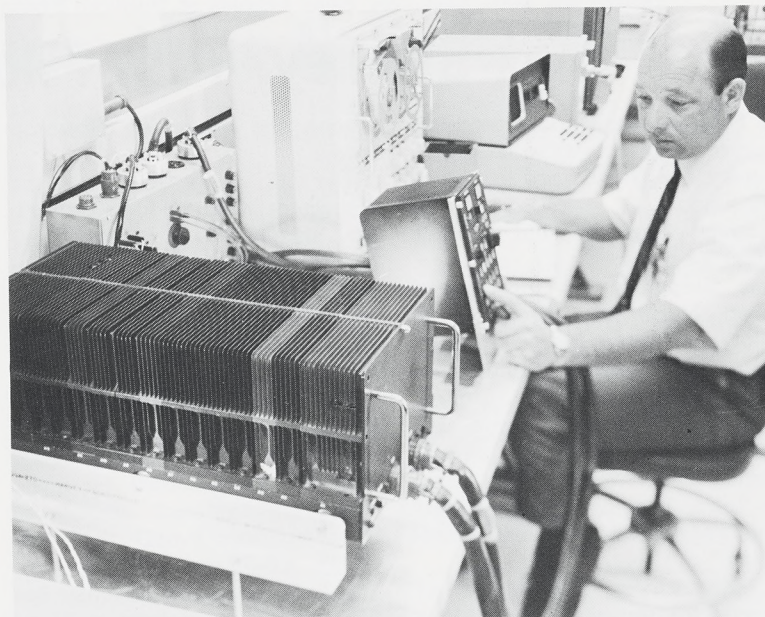
SCHEDULING IS A BIG part of the division's work on the Joint Services In-Flight Data Transmission Systems. As systems manager of the multi-million dollar contract, Electronics is charged with coordinating the efforts of its subcontractors to produce a system wherein data collected by reconnaissance aircraft will be relayed to a surface terminal. Here, Hank Fella, A. L. Edwards and Fred Noah, from left, confer on an item in front of a mock-up used in the program.



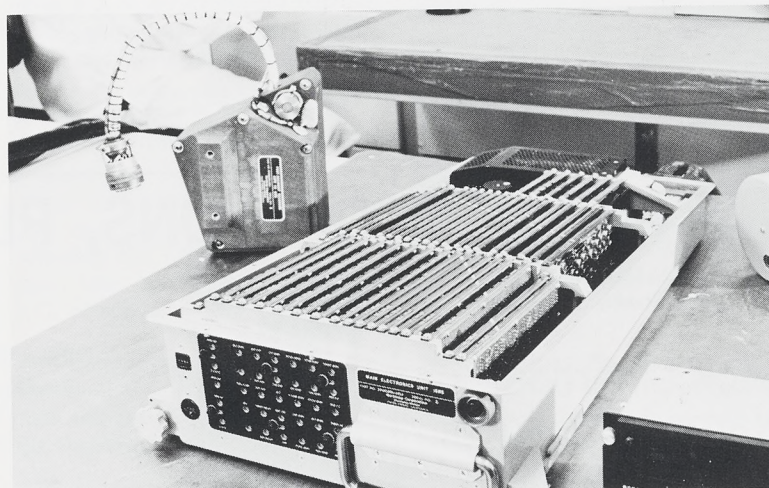
MODEL OF THE WORLD'S largest aircraft, the C-5 Galaxy, sits on top of the inertial measurement unit—heart of the Inertial Doppler Navigation System built by Electronics. This system, which is the first completely integrated navigation system ever designed, automatically directs the C-5 to follow a predetermined flight path along great circle routes to its destination. Electronics also has designed and produced an astro-inertial navigation system for the SR-71, the triple-sonic USAF aircraft built by Lockheed.



SECRETARY JOAN BERRY holds the latest inertial platform developed by the Navigation department. In front of her is the world's first astro-inertial navigation system developed for the Snark missile. Although the older system's weight prohibits its use on today's advanced missiles and aircraft, it is still considered as the most accurate navigation system in the world—a tribute to the pioneering work accomplished by Electronics Division's engineers and technicians.



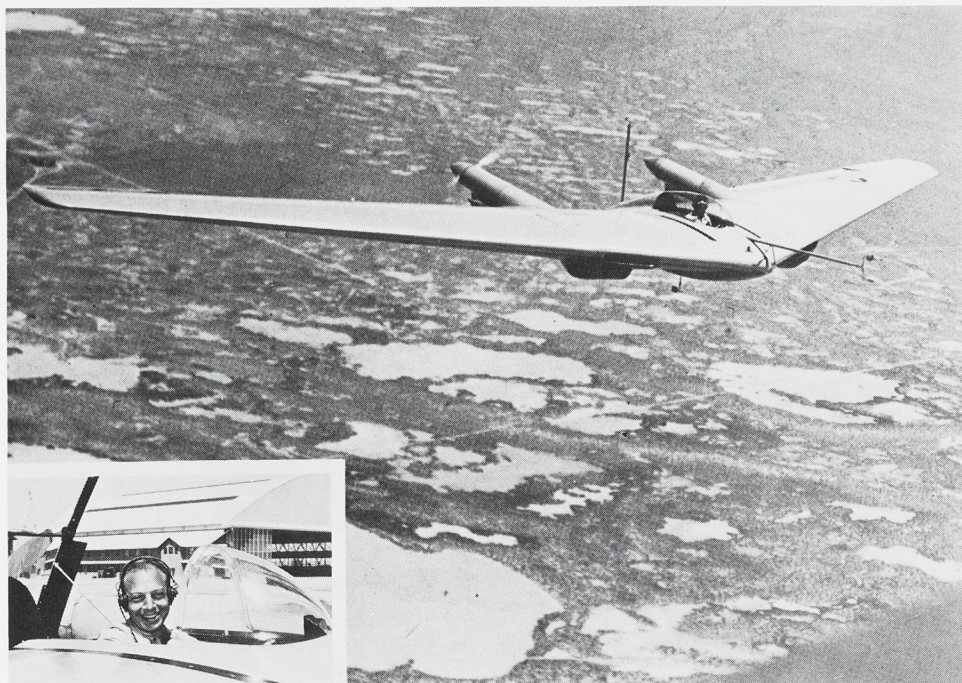
AN AIRBORNE OMEGA RADIO navigation system is one of the most promising new products developed by the Electronics Division. Shown here in the test laboratory being operated by Joe Rey, it automatically calculates (through a Northrop computer) an aircraft's position and presents the data to the pilot in latitude and longitude. The division also produces marine versions of Omega suitable for both commercial and military vessels.



ONE OF THE LATEST information systems produced by Electronics is the Integrated Status Reporting System, shown here in the foreground. It is capable of monitoring more than 100 operating conditions and warns of malfunctions through 40 recorded messages. Other information systems produced by the division include airborne voice warning systems for U.S. Army and Air Force aircraft. These systems use a woman's voice to alert crewmembers of hazardous conditions.



HEADQUARTERS OF THE Electronics Division are located in the beautiful hills of the Palos Verdes Peninsula. Set amidst extensive landscaping, free form waterways and tree-shaded benches, this facility is designed to allow personnel to carry out their assignments in an environment that is conducive to creative thinking.



MAX STANLEY AND THE NORTHROP N9M
Veteran test pilot, inset, flew many versions of Northrop Flying Wings.



FRIENDS BID MAX STANLEY 'ADIEU' AT FAREWELL PARTY
Max Stanley, fourth from right, worked closely with Northrop veterans.

Max Stanley, Test Pilot, Hangs Up His Helmet And Goggles

The two men were in complete accord. The job was to be a temporary one. It was not to exceed six weeks.

"Jack Northrop and I made these arrangements 27 years ago. The temporary job was to end when Northrop's two-man test pilot staff returned to full duty status or my pending commission in the U.S. Navy came through.

"It now appears to me that this is about as far as anyone should try to stretch a good thing, so I am hanging up my helmet and goggles and entering retirement."

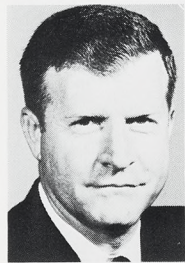
Max Stanley, the "dean" of Northrop's test pilots, made these comments as he prepared to cap



A FAMILIAR POSE
Max Stanley in cockpit.

Nick Linardos Named President Of NIT Alumni

Nick Linardos, engineering specialist in the Aircraft Division's Systems Development section, recently took over the presidential reins of the 5,600-member Alumni Association of the Northrop Institute of Technology.



Mr. Linardos
first attended NIT in 1948 and later returned to the Inglewood engineering college in 1960 to receive a bachelor of science degree in aeronautical engineering.

"I am fortunate to begin my term as president of NIT's Alumni Association with a highly competent alumni executive committee to assist me. I think I have a real good crew. We'll really get to do a lot," he said.

Mr. Linardos' term of office lasts through academic years 1970-71 and 1971-72 at NIT.

a long and interesting Northrop career.

For 12 years following the agreement reached in late 1943, Mr. Stanley was a Northrop experimental test pilot. He flew everything the company produced—conventional-powered aircraft to jet interceptors and bombers, Flying Wings to transports.

He played a role in developmental flights in the Northrop N9M, P-61, F-15, C-125, B-35, B-49 and F-89 aircraft. He made first flights in such aircraft as the P-61C and P-61D, the F-15, C-125, XB-35 and YRB-49.

Subsequently, Mr. Stanley has filled such posts as chief of Flight Operations, Special Weapons, during SNARK missile system development, as director of the Flight department, and more recently as manager of Flight Support Operations. Recently his expertise was utilized by Northrop in the preparation of a master plan for a new international airport in Puerto Rico.

Mr. Stanley is a native of Santa Monica and former Stanford

University student. He made his first flight in 1933. Shortly thereafter he acquired his first airplane, a Fairchild 24, and utilized it to commute between branches of a finance company he owned and operated in four cities.

A Change of Jobs

His concern over the growing war clouds over Europe prompted Mr. Stanley to dispose of his business interests in 1939 and seek employment as a professional pilot. He applied for a job at Lockheed one afternoon and found himself at work as a co-pilot the following day on a ferry flight of a Hudson bomber en route to Montreal. For the next year he flew Hudsons to East Coast debarkation points where they were picked up and flown to Great Britain.

From 1940 to 1942 he ferried Lend-Lease aircraft from the United States to Africa, India and China. His versatile talents enabled him to serve as pilot, co-pilot or navigator on such aircraft as the DC-2, DC-3, Lodestar, Electra, B-26, A-20, B-25

and B-34.

From early 1942 until he joined Northrop, Mr. Stanley was a flight captain for United Airlines flying contract flights from San Francisco to Australia aboard four-engine transports.

Mr. Stanley admits to having a "soft spot" in his heart for every aircraft he has flown. Some, however, stand out in his memory.

"The P-61 was an advanced aircraft and a dream to fly, so was the F-89. And I will never forget the thrill of flying radically different aircraft, such as the various versions of the Northrop Flying Wing," Mr. Stanley says. "One memory I will cherish highly is of the many wonderful men and women I have worked with through the years. They are truly the finest people in the world."

For the old-timers among Northrop employees there are many memories of Max Stanley. One that stands out foremost is the recollection of Mr. Stanley flying the giant Northrop Flying Wings off what is now Hawthorne Muni-

cipal Airport, plus an equally remembered feat of bringing several in for modifications.

Mr. Stanley likes to say that in his 35 years of flying that he has never had a MINOR accident. At the same time he will tell you of bailing out of disabled aircraft, once over the Long Beach area, another time at Holloman AFB.

For sustained drama few of his exploits can rival a South Atlantic crossing ferrying a Lodestar.

One for the Books

"We had four fuel tanks and switched from one to another by using a rotary selector. On this flight the selector froze in position. It would not turn in one direction and was blocked from movement by a post in the other. Our engines stopped and we drifted from 12,000 to 4,000 feet while trying to switch to a full tank," he recalls. "In desperation I took out a screw driver and pried the selector unit over the post. Then we were able to use the fuel in the other tanks. Just in time, I might add."

OPINIONS, PLEASE—What Do You Consider Man's Greatest Invention?



Frank Dibble, Polaris Depot, Electro-Mechanical:

I think it is the wheel. Whoever first figured out this great invention started the train that has led to all other inventions.



Una Murray, shipping clerk, Electro-Mechanical:

I think it is electricity. There are so many things that we couldn't do today if electricity hadn't been developed as it has. It has done as much as anything to make the world a better place to live.

Vi Boddy, secretary, Aircraft:

I think it is the airplane. It permits us to get around faster and has drawn the world more closely together. Now the common man can travel where before he had to sit and read about far places of the world.



Arthur Murphy, equipment operator, Aircraft:

I think it is the spaceship. It went to the moon and I think that is the greatest thing that has ever been done.



H. A. (Andy) Anderson, Development and Test technician, Electronics:

The wheel. Not just the wheel, but all four of them. We'd be doing an awful lot of walking without them, and still be in the stone age.



Ann Howell, assembler, Electronics:

I think the various types of tools man has invented are very important. Things would be so difficult without them.

Judy Eddy, secretary, Ventura:

I read someplace that it was the wheel. But it is creating so many problems today I'm not so sure anymore.



John Jarose, 747 leadman, Ventura:

The ability for a team of men to produce a voyage to the moon and safe return of the astronauts. While it was a team effort, it still ranks as the best.



Classified

Classified ad service is provided free of charge to all Northrop personnel. Ads for agencies, commercial enterprises and private businesses are not accepted. The Northrop News reserves the right to edit or omit ads. Obtain ad form C67 from organization clerk and mail ad to Northrop News, 170, zone 62. Ads are limited to one item and one ad per person each issue. Deadline is noon Wednesday, one week before publication.

Automobiles For Sale

Chevrolet, 1962 Bel Air, V-8, auto. trans., \$250. 213-675-8904. A

Buick, 1959, p/b, p/s, a/c, \$200. 213-534-5287. A

Cougar, 1967, 4-spd., a/c, console, 8-track stereo, \$1,525. 213-372-1386. A

Chevrolet, 1966 Bel Air, 4-dr., p/s, p/b, auto. trans., \$990. 213-373-1020. A

Volkswagen, 1962, rebilt. trans., 61,000 mi., \$550. 213-596-5488. A

Camaro, 1968 w/spoiler, AM-FM stereo radio, \$2,000. 213-322-1077. A

Triumph, 1967 GT-6, wire whls., \$1,995. 714-537-5532. A

Dodge, 1965 Dart, 2-dr., auto. trans., r/h, \$650. 213-766-8919. A

Chevelle, 1968 396 SS, 4-spd., p/s, r/h, mags, \$1,800. 213-644-6090. A

Plymouth, 1965, 2-dr., h/top, 318 cu. in. V-8, \$650. 714-637-4194. A

Mustang, 1969, 351, 4-bbl., p/s, power d/brakes, AM, console, auto., a/c, \$2,900. 714-642-3267. A

Elva, 1959 convt., full street equipment, full race MGB eng., racing whls. & tires, d/brakes, \$1,000. 213-372-1219. A

Corvette, 1969 coupe, p/s, pwr. d/brakes, a/c, posit. rearend, AM-FM radio, 350 cu. in., 300 h.p. Turbo-Hydramatic, \$4,950. 213-676-9518. A

Ford, 1927 Model T, 4-dr. sedan, restorable, new top, made in Canada, \$500. 714-526-6759. A

Volvo, 1964, w/1967 eng., \$1,095. 213-346-9701. A

Volkswagen, 1966 sunroof, headers, \$1,000. 213-328-4233. A

T-Bird, 1964, \$395; Oldsmobile, 1966 Cutlass, \$495; min. bids for Continental, 1964, \$750; Cadillac, 1966, \$1,795; Buick, 1967, \$1,095; TR Spitfire, 1967, \$995; Plymouth, 1968 Baracuda, \$1,295; Datsun, 1970 & camper, \$1,295. Credit Union ext. 1117. A

Volkswagen, 1965 bus, fully panelled, 95 h.p. Porsche eng., \$1,575. 213-676-9574. A

Cadillac, 1968 Coupe De Ville, air, tilt/tele, 6-way seat, AM-FM radio, \$3,600. 213-324-4845. A

Plymouth, 1969 GTX, auto. trans., p/s, r/h, 27,000 mi., \$2,995. 213-322-2332. A

Cadillac, 1965 De Ville convt., fact. air, full power, \$1,800. 213-663-3622. A

Chevrolet, 1963 Biscayne, 6-cyl., stick shift, \$300. 213-324-8752. A

Mustang, 1969, \$2,275. 213-964-6123. A

T-Bird, 1964, full power, w/air, 52,000 mi., \$1,200. 213-675-7938. A

Chevrolet, 1957, 6-cyl., stick shift, \$395. 213-370-3821. A

Austin Healey, 1964 3000 Mk III, o.d., new top, \$1,200. 213-456-3019. A

BMW, 1961 700 coupe, \$400. 213-645-0869. A

Triumph, 1967 TR4-A, 45,000 mi., new clutch, \$1,750. 213-641-5584. A

Oldsmobile, 1969 Cutlass, 350 cu. in. eng., p/b, p/s, auto. trans., air, \$2,650. 213-370-9124. A

Pickup, 1963 Ford, small V-8, long bed, \$750. 213-831-4586. A

Karmann Ghia, 1968, headers, new tires, \$1,595. 714-838-3740. A

Household Items For Sale

Chairs, sculptured, black welded steel w/velvet cushion, \$50. 213-371-2091. B

Refrigerator, Welbilt, apt. size, used 3 mos., \$120. 213-372-7726. B

Sofa-Bed, white vinyl, \$50. 213-374-1287. B

Dining Room Set, never used, w/leaf, seats 6, formica finish, \$70. 213-373-2542. B

Sewing Machine, antique Singer, scrolled iron sides & treadle, hvy. oak cabinet, \$25. 213-324-7259. B

Refrigerator, deluxe Cyclo-Matic Frigidaire, copper-tone, top freezer, \$85. 213-635-7843. B

Dryer, deluxe Maytag, gas, \$85. 213-671-6477. B

Sectional, 2-pc. & chair, modern, \$90. 213-277-2920. B

Stove, O'Keefe & Merritt, \$55. 213-755-1925. B

Miscellaneous For Sale

Guitar, Rickenbacker, \$175. 213-633-6106. C

Travel Trailer, custom-made, 18' w/bath, \$1,295. 213-839-0747. C

Wig, dk. brown, wash & wear, & fall, reddish brown, human hair, case, \$12. 213-329-9982. C

Supercharger, Shelby-Paxton, fits Ford 289, still in orig. box, \$400. 213-674-5542. C

Ring, 1/2 carat, diamond, \$190. 714-528-3039. C

Motorcycle, 1965 Honda, CI-10, 7,800 mi., \$90. 213-675-7982. C

Wig, human hair, auburn, neck-line cut, \$25. 213-323-2019. C

Miscellaneous For Sale

Mags, 4 Ansen Sprint, & 4 positraction tires mounted, \$195. 213-671-7875. C

Typewriter, Singer, \$25. 213-675-8278. C

Acreage, 2 1/2 acres, 8 miles from Capistrano off Ortega Hwy., \$14,000. 714-528-4553. C

Mini Bike, 3 h.p., Briggs & Stratton, shocks, 40 mph, 8 mos. old, \$95. 714-523-9429. C

Piano, Elbert spinet, 2 yrs. old, \$185. 213-329-6673. C

Motorcycle, 1966 Harley Davidson, 50 cc, trail sprocket & chain, \$135. 213-833-7306. C

Tires, 5 mud & snow type, 9:00 x 15, \$20. 714-737-9429. C

Books, Book of Month Club, \$1 ea. 213-779-6842. C

Boat, 13', 15 h.p. motor, tailored cover, steering whl., remote controls, \$150. 213-862-3310. C

Heat & Massage set, Niagara, Thermo-Cyclopad, portable w/carrying suitcase & timer, \$195. 213-676-0400. C

Chord Organ, Hammond, mahogany, incl. bench & \$200 worth of music, \$450. 213-327-3872. C

Stole, mink, autumn haze, \$200. 213-343-6948. C

Mobile Home, 20 x 43 Imperial, 2-bdrm., completely furn., on 86 x 130 lot at Del Sur Ests., Yuma, Ariz., \$12,500. 213-632-2642. C

Weight Set, 110 lbs., \$15. 213-320-3430. C

Home, 2-bdrm., 50 x 150 lot w/80' block fence, cpts., dps., newly painted, \$20,500. 213-532-6687. C

Motorcycle, 1969 Yamaha, 125 cc Enduro, \$400. 213-372-4797. C

Engine, VW, 1200 cc, all access., \$160. 213-396-6739. C

Radiator Grill, chrome plated, for 1940 Ford deluxe, \$15. 213-375-0915. C

Golf Clubs, 4 woods, alum. shafts, D1 swing wt., \$75. 714-545-2035. C

Truck Tire, tubeless, & 8-lug whl., Goodyear Hi-Miller wide tread, 800 x 16.5, 8-ply, \$50. 213-377-3487. C

Exercycle, \$6. 714-968-5343. C

Piano, Bradbury upright concert grand, recently recond. & tuned, \$235. 213-696-7529. C

Wigs, auburn red, European hair, cut in full Sasoon or Bonaparte style, \$17. 213-324-6043. C

Motorcycle, 1969 Honda 350, 3,000 mi., \$475. 213-779-2654. C

Work Bench, hvy. duty, 30" x 60", metal legs, 3/4 plywood top w/masonite cover, never used, \$40. 213-422-7766. C

Shopsmith, w/jointer, many access., \$150. 213-472-8427. C

Trail Bike, Honda 90, \$150. 213-675-0549. C

Boat, 35' t/s Owens h/top sport cruiser, fully equipped incl. Onan & Sabot, \$11,750. 213-377-1734. C

Amplifier, stereo, Eico ST 70, 70 watts, \$35. 714-535-6990. C

Tools, 27 pc. set Morse taper shank & 7-center drills, 3 end mills, 12 reamers, \$30 or sell sep. 213-545-6719. C

Microphone, Unidyne Dynamic, w/cover & 5' adj. stand, Shure Mod. 55S, \$75. 213-323-9567. C

Trailer, 30', located at Mammoth, 10 min. from ski area, \$500. 213-834-9205. C

Camera, Polaroid Mod. 320, complete w/access. & case, \$50. 213-676-2718. C

Pups, basenji, barkless, AKC, \$75. 714-528-1919. C

Snow Skis, French metal, 210 cm, \$30. 213-676-2389. C

Airplane, 1961 Cessna 210 A, fully equipped, \$12,500. 213-399-4168 or Credit Union ext. 1117. C

Golf Clubs, bag, 1, 2, 3 K28 woods, 2-9 McGregor irons & putter, med. shafts, leather grips, \$40. 213-378-4567. C

Boat, 18' inbd. runabout, 327 Chev., velvet dr., mahog. deck, trailer w/elec. brakes, \$2,750. 213-378-4959. C

TV, 21" b&w, maple cabinet, custom-blt. by Conrac, \$35. 213-676-7357. C

Oil Paintings, frames, various European & American artists, \$18-\$74. 213-378-0667. C

Juke Box, stereo AMI 200 play, w/records, will deliver, \$186. 213-676-2142. C

Tires, 2 H-70-14 & 885-14 nylon, \$28. 213-835-8186. C

Typewriter, Royal elec., used 20 hrs. \$120. 213-866-3508. C

Motorcycle, 1969 Puch, 125 cc, \$250. 213-323-6079. C

Bulldozer, HC-21, cable, \$8,000. 213-679-7405. C

Boat Trailer, 16' Wallstrong, V frame, 6:00x13 tires, winch, \$200. 213-377-5853. C

Air Conditioner, 9K b.t.u., \$50. 213-675-9667. C

Motorcycle, 1967 Yamaha, \$397. 213-323-2289. C

Wanted to Buy

Safe, upright, approx. 9 cu. ft., comb. lock. 213-542-4605. D

Hockey Equipment, used men's, any type, incl. ice & roller skates. 213-776-1928. D

Toy Trains, old, & catalogs. 213-675-6461. D

Sofa, sectional, & little upright piano. 213-532-1817. D

Track, N gauge, switches, power pack & rolling stock. Box 1701. D

Travel Trailer, late model, 17' to 20', must be self-contained & reasonable. 213-327-8047. D

For Trade

Rim, 16" 8-lug, split, w/tire, trade for 16.5" x 9.75" rim. 213-324-6570. E



EL SEGUNDO BOBBY SOX ALL-STAR SOFTBALL TEAM
Northrop girls help win National Bobby Sox Softball Championship.

NORTHROP GIRLS HELP

El Segundo Team Wins National Title

Debbi Diaz and Madeline Cripe, daughters of Northrop's Joe Diaz and Lyle Cripe, were members of the El Segundo Bobby Sox

all-star team that won the Bobby Sox National Softball Championship.

Mr. Diaz, who is also president of the El Segundo Bobby Sox League, said the two young ladies played all season with the regular team and then were picked for the all-star team to compete in the district and then the national competition.

They played in the major divi-

sion for girls 12 to 15, competing against both California and out-of-state teams. The national series took one week to play, and the El Segundo team was the only entrant to go undefeated through the entire series. They played fast pitch softball.

Mr. Diaz is manager, Military Logistics, at Mariposa, and Mr. Cripe is manager, Personnel Administration, Aircraft Division.

EDITOR'S NOTEBOOK

Claude A. Pike, now of Sun City, Calif., dropped us an interesting note regarding a European vacation he and his wife took and the fact they selected the Boeing 747 for as much of their trip as possible. Mr. Pike noted he worked for the Aircraft Division for 26 years prior to his retirement.

Mr. and Mrs. Pike selected American Airlines and its Los Angeles-New York 747 flight for the first leg of their journey. They then switched to Pan American, and again the 747, for the jaunt to Paris. Following an extensive tour throughout Europe, they reported to London, hoping to return via 747. Difficulties made this impossible for they traveled via another aircraft back to New York, but faithfully switched again this time to Trans World Airlines' 747 flight back to Los Angeles.

Mr. and Mrs. Pike admit they are at a loss to say which of the airlines they liked best. "Each had its own advantages. The service on all was superior and the food out of this world," Mr. Pike wrote. The conclusion, as the Pikes see it, is that you cannot go wrong in selecting the 747 on any airline. Both admit they are already looking over tour books for another vacation trip next year. Aboard the 747, of course.

* * *

We have learned, a bit late it appears, that Northrop's Gerry Cardoza, Aircraft Division manager of F-5/T-38 Project Engineering, was one of the 747 passengers honored around the world July 16 on the day the 747s chalked up their 1,000,000th passenger. Rather than pick just one passenger for the honor, all 747-equipped airlines participated in the celebration by honoring all its passengers that day. Mr. Cardoza was traveling on company business, New York to Los Angeles, via American Airlines. He admits he was caught completely by surprise when he was handed a packet of "goodies" commemorating the occasion.

* * *

A few issues back we reported Pan Am's introduction of the "Going Great Girls" who are touring the country to pass out information on the advantages of flying the 747. In a recent two-week period, Pan Am reports, the team covered 1,800 miles, logged 158 minutes of television interview time, 320 minutes of radio time, eight newspaper interviews, and presented the mayors of four cities with honorary captain's wings. In one hectic day they appeared in Denver, Pueblo and Colorado Springs.

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SWIMMING AND GAMES highlighted the NRC picnic as youngsters enjoy the pool above and scramble for candy, above right, while stilted sheriff watches, right. Below, Paul Potter and Ray Janus happily grimace as sons unload water pistols on their dads.



HUNDREDS ENJOY BIG VENTURA NRC PICNIC



KER-SPLASH marks defeat for one water balloon-tossing entry, above, as little Cindy Seefeldt, below, enjoys her lunch. At bottom right, Ted Szostek suffers variation of Chinese water torture. He and Mrs. Szostek later won egg toss.

RETIRING SEPT. 4

Gene Haflinger Ends 27-Year Career

What does an accountant do with his time when he retires after 27 years with Northrop's Ventura Division? He returns to his hobby of home construction.



Mr. Haflinger

At least that's what Eugene V. (Gene) Haflinger may wind up doing. The soft-spoken accountant retires Sept. 4 after a rewarding Northrop career.

Mr. Haflinger first went to work at the then-Radioplane Company in Material Control in 1942. Laid-off when work slowed to a near standstill in 1947, he rejoined the company in September 1948 and has been here ever since.

The native California son of a building contractor, Mr. Haflinger built a house for his family in West Los Angeles during the time he was not working at Northrop.

He later built two more homes

in the San Fernando Valley (his family spent time in each one), before buying an apartment house and living in it in North Hollywood.

Mr. Haflinger transferred from Material Control, where he was a supervisor, to the Finance department 10 years ago. The graduate of Woodbury College is known for his quiet manner.

"When I was in Production Control we shared the same office," recalls 20-year man Warren Clymer who is also in Finance now, "he was always very pleasant but would hardly say one word in a whole day. We used to kid him a lot."

Always good-natured, Mr. Haflinger applies the same style to his work in Finance.

He may do some handiwork around his apartment house when he retires. The grandfather of one plans on travel, too.

He'll no doubt visit his married daughter in Missouri and a son, Don, a TRW engineer and graduate of the Northrop Institute of Technology, in Hawthorne. He toured Japan for five weeks two years ago and is considering a South Pacific cruise in the near future.

For Gene Haflinger, retirement means more than a pension. He intends to be a busy man.

REC ROUNDUP—All Are Busy

(Continued from page 1)
(double) and motel rooms are \$14.70 (double occupancy). Friday, Sept. 4, is reservations deadline day.

Further information may be obtained by contacting Golf Club President Lou Gabriel at ext. 248.

Quail Walk Slated

A unique opportunity for Ventura Division scatter-gunners to sharpen their reflexes for the upcoming quail season is being planned by the Recreation Club's Rod & Gun Club.

A "quail walk" is scheduled for

Sept. 27 on the Ventura grounds near the drop tower.

Hal Hunsberger, one of the coordinators, describes the quail walk as a mock hunt. "Hunters will walk the designated area and suddenly a trap will send one or two clay targets springing into the air."

The result will be "a real test of reaction, marksmanship and hunting etiquette," he explained.

Shooters are asked to notify Mr. Hunsberger, Don Kohn or Earl Muehlenbach of their intentions to participate no later than Sept. 16. Cost will be \$1 for adults and 75 cents for children under 17 years of age.

In Memoriam

Fellow employees extend their sympathies to the family of:

Richard (Dick) Davis, chief of Cost Accounting and Reports, who died Aug. 14. Mr. Davis joined Northrop on April 24, 1963.

Rec Club Photos By Bill Umbenhauer



Rear Admiral Woods Praises Ventura Mark 30 Team

"Our congratulations to all of you for a job well done!"

Those are the words of U.S. Navy Rear Admiral Mark W. Woods, commander of the Naval Ordnance Systems Command, to the Ventura Division's Mark 30 underwater target team.

Admiral Woods said, in a letter to Ventura personnel, "The Naval Ordnance Systems Command would like to take this opportunity to commend (Ventura) for their effort that resulted in the successful operation of the ASW Mobile Target Mk. 30 at the Barking Sands Underwater Range."

He continued, "As prime contractor for this important program, (Ventura) proved to be administratively

and technically capable to do Navy underwater developments."

The letter noted, "The command's requirements were always met with the utmost responsiveness."

Among those singled out for praise was the Program Management Team, "outstanding in contract administration," and the team's "innovative people" who were lauded for the "high quality design of the target."

"Equally capable people" contributing to the success of the initial Mark 30 effort were cited by Admiral Woods.

"Our thanks also go to many other capable people, too numerous to mention in this letter, who were involved with the program," Admiral Woods concludes.

Ventura developed and produced two mobile anti-submarine warfare training targets for the Naval Ordnance Systems Command. The underwater targets simulate submarines.

The Mark 30s performed successfully in operational tests at Barking Sands, the Pacific Missile Range facility in Hawaii, against nearly all major anti-submarine weapons systems.

The Mark 30, Ventura's first entry into the underwater training target field, is now fully qualified as an integral part of the Navy's training inventory at the Barking Sands Range on the island of Kauai. It continues to perform admirably in anti-submarine warfare maneuvers.

NORTHROP NEWS

VENTURA DIVISION EDITION

Published biweekly by Northrop Corporation, Beverly Hills, California

Vol. 28, No. 18

September 16, 1970

Ventura Service Pins Add Up to 195 Northrop Years

Fifteen Ventura personnel mark 195 years of combined service with Northrop this month.

They are led by 20-year man Ralph James, a foreman in 747 Final Assembly. Ten people qualified for 15-year pins this month.

Mr. James first went to work on Radioplane's drone assembly line in 1950. He subsequently participated in the Mercury, Gemini and Apollo programs before moving to the 747.

Receiving 15-year pins in September are Eleanore DeGroote and Gladys Ellisen of the Accounts Payable and Payroll group, Earl Clark and Ray Gage of the Assembly Planning branch and Hank Widmer of Contracts.

More for Fifteen

Also, Marty Frank of the Material Planning branch, Earle Hammond of the Metal Shop, Helen Clark of the Planning and Control branch, John Clancy of

the Tool Crib, and Wilbur Leeds, Maintenance.

The Metal Shop's Melvin Pierceall is the sole recipient of a 10-year pin this month.

Receiving pins for five years of service with Northrop are John Jarose, Bill Newbury and Nettie Bredstrand.

FOUR EARN TITLE OF 'BRIDGE CHAMP' IN TEAM EVENT

The team of Terry Chin, Fred Longo, Maybelle Trudell and Harry Wirth were the best of five teams competing in a recent Ventura Division Bridge Club team tournament.

The winning quartet scored an outstanding 76 per cent possible points (60 per cent is considered very good) in winning the week-long competition. Games are played on the noon hour.

Finishing second was the foursome of Bob Calhoon, Bob Feakins, Jack Moeller and Bob Wondka.



ADDRESSING PERSONNEL ON 100TH WING FAIRING DELIVERY
On platform, from left, Larry Carroll, Boeing's Derek Johnson, and M. A. Maurer.

COST-CONSCIOUS EFFORT

747 Team Enthusiastic About Program

"We've done a good job and we're going to do even better."

That's what M. A. Maurer, manager of Production Operations, told the assembled 747 team personnel as they gathered to send the 100th shipset off to Boeing with special ceremonies.

Mr. Maurer, 747 Program Manager Larry Carroll and Boeing's Derek Johnson praised the Ventura Division's effort in producing the wing-to-body fairings for the jumbo jet.

"It is gratifying to meet the people who have made such giant strides in cost savings," Mr. Johnson said. Boeing officials, he explained, were initially skeptical of Northrop's plans for the 747. "But I'm here to eat crow. Your management said their team could do it and you did."

The Challenge

All three speakers noted the 100th shipset marks the halfway point in the current 747 program and "the challenge is tougher now for follow-on work," in Mr. Maurer's words.

His confidence in the ability and diligence of Ventura personnel is supported by a random sample of opinion among 747 personnel.

"This is a great program," Ray Escott told the Northrop News.

He is foreman of Tool Preparation and Metal Spray for the 747. "It's one of the nicest programs we've had in here in a long time," he adds.

"The quality is high and so is the push. It has to be a big push program to succeed," Mr. Escott noted.

Midge West, lead lady in Plastics Lamination, feels the 747 work is "a good team effort. It couldn't be done without the full cooperation of all departments. It takes all of us."

Feeling of Pride

Paul Barbakow, a project dispatcher, missed the ceremony because of his vacation, but said "it was exciting to read about it in the Thousand Oaks paper. It gave me a real feeling of pride."

A leadman in 747 Final Assembly, Ed Kephart, on the program since the beginning, feels "a lot of self-satisfaction in the job, especially in being able to see your finished product. I enjoy working on it."

Delio Piantino, a project analyst and another "from the beginning" 747 man, feels the program is "wonderful." He says he wears his silver 747 pin proudly.

Two of the 747 engineers, Bill Quick and Bill DeMario, discussed the problems of the pro-

gram and the resulting solutions.

"This has been a large program and a little more complicated," Mr. Quick explained. "But the performance record of the plane would reflect the way we were all able to meet the challenge."

Not an Easy Task

Mr. DeMario added, "In this program it has been a matter of large scale with low cost and thus a bigger challenge to production."

It is apparent that a cost-conscious and persevering attitude prevails among Ventura personnel in the 747 program.

On The Job...



JESS TAVERA marks a status report on a 747 honeycomb part before it goes into layup. Mr. Tavera has been on Ventura's project planning staff for the past 2½ years.



WHAT'S HE DOING?
See page 6 for the answer.

Coming In At Sundown



AN ARTIST WOULD have difficulty composing a more beautiful picture than this flight of two Northrop T-38 Talon jet trainers banking into the sunset at the conclusion of a training mission. Northrop Talons are in use across the nation in the USAF Undergraduate Pilot Training program, as chase planes for new aircraft, proficiency trainers for the nation's astronauts and with the U.S. Navy's Test Pilot School.

Ventura Man Enrolled in Top Management Program

The Ventura Division's John Flores is participating in Harvard University's 13-week Advanced Management Program which began Sept. 14.

Mr. Flores, deputy manager and chief engineer of Ventura's Engineering department, was selected by Northrop and Harvard for the special program.

A Northrop employee since 1960, Mr. Flores joined the Ventura Division three years ago. He holds a bachelor's degree in aeronautical engineering from Purdue.

Two other Northrop men will also receive a concentrated advanced education this month. They are Dr. Walter Crandall, Corporate vice president and manager of the Northrop Corporate Laboratories, and Rex Fairless, manager of Industrial Relations and Administration at the Ventura Division.

Dr. Crandall and Mr. Fairless will attend a conference for business executives on federal govern-

ment operations under the auspices of the Brookings Institution in Washington, D.C., this week.

With other executives from around the country they will hear talks by top legislative, executive and military leaders on the many-faceted operations of the federal government.

PLAYOFFS SET

Champions from 19 NRC-sponsored summer Twilite Golf Leagues now winding up their season will gather at the Los Serranos Country Club, Chino, Sept. 27 for the annual league playoffs to determine plant champs.

The winners of first and second round play in each of the leagues will be eligible to compete in the medal play event.

CLASS REUNION

Manual Arts High School's class of 1938 is contemplating holding its first reunion in 32 years. Barbara Warren of the Electro-Mechanical Division is one of the planners. She invites Northrop graduates to call her evenings at (714) 528-3963.

IN EL SEGUNDO

Joe Diaz Named 'Citizen of The Month'

Joe Diaz, manager of Military Logistics for the Aircraft Division, has been named Citizen of the Month by the El Segundo Chamber of Commerce.

Mr. Diaz received the award for the work, time and effort he put forth toward developing the youth of El Segundo.

Specifically, Mr. Diaz was recognized for the job he performed as president of the El Segundo

Northrop Records CMIP Savings Of \$20 Million for FY 1970

Northrop's seven major operating entities effected savings of more than \$20 million in the past fiscal year and exceeded cost reduction targets by 21 per cent.

R. M. Detmers, Corporate Cost and Management Improvement Program coordinator, reported that in the 1970 fiscal year which ended July 31 the goal of \$17,095,000 was topped by a total savings of \$20,652,000.

The Aircraft Division represented the biggest dollar savings as it exceeded its goal of \$13,400,000 with a 113 per cent report or \$15,120,000 in savings.

The Hallicrafters Co. was the biggest percentage saver as it turned in savings of \$524,000 against a goal of \$160,000 or a 328 per cent effort.

All operating units met or exceeded their goals. Figures for the Electro-Mechanical Division,

Page Communications Engineers and Hallicrafters are based on goals and savings for three quarters only.

The Ventura Division racked up \$1,732,000 in savings to top its goal of \$1,458,000 for a 119 per cent report. The Electro-Mechanical Division saved \$454,000 with a target of \$200,000 for a 227 per cent effort.

Page set a million-dollar goal

and almost hit two million, turning in \$1,941,000, while Northrop Data Processing saved \$280,000, against a \$277,000 goal. The Electronics Division barely exceeded its \$600,000 goal with a report of \$601,000.

Based on a 100 per cent report for meeting a company-wide goal, CMIP personnel hit the 121 per cent level with their outstanding cost savings programs.

There It Was 'Happy Birthday' In Bright Lights

It's one thing to go to a baseball game on your birthday. But to have a birthday greeting spelled out on the signboard and then have a foul ball plop into your purse is something else again.

That's just what happened to Jan Woods Dickerson, a 16-year Northrop employee and secretary to B. N. Mullings in Scientific Programming at the Aircraft Division.

Mrs. Dickerson's husband of four months wrote the Dodgers a week before the Sept. 7 two-night doubleheader with his request. He asked that a birthday greeting be displayed in lights for his new bride who had just gotten out of the hospital after major surgery.

A Surprise

Mr. Dickerson never heard from the Dodgers until he saw "Happy Birthday to Jan Dickerson of Hawthorne from her husband, Lee. Nice to have you with us at the game." His wife was very pleased.

Later, Willie Davis hit a foul ball up toward the Dickersons. Mrs. Dickerson ducked as the ball ricocheted off the seat next to her and plopped into her open straw purse.

After the game the Dickersons sought outfielder Davis for an autograph. Both he and shortstop Maury Wills offered birthday greetings on the baseball.

To top it all off the Dodgers swept the twin bill from the Atlanta Braves, 4-3 and 6-1. "I'm a real baseball fan but that was really a doubleheader," Mrs. Dickerson said later.



MAKING A PINPOINT LANDING

U.S. Army's Golden Knights will demonstrate precision parachute jumping at Space Fair 1970 Oct. 17-18 at Pt. Mugu. Golden Knights regularly hit dead center on target less than four inches in diameter. Official photograph, U.S. Navy.

Blue Angels, Golden Knights Will Highlight the Pt. Mugu Naval Show

Space Fair 1970, the U.S. Navy's eleventh annual airshow at Pt. Mugu will feature events ranging from dramatic aerobatics by the famed Blue Angels to the flight of a 1909 Bleriot, a model of the first plane to fly across the English Channel.

Other spectacular events will be a plane picking up a paper streamer from a line held a few inches off the ground while flying upside down, precision parachuting by the Army's Golden Knights, demonstrations of military equipment, exhibits by 100 aerospace firms, and a half-mile carnival.

The Space Fair is set for Oct. 17 and 18 at the Naval Air Station, Pt. Mugu, located 25 miles west of Malibu. Gates are open

from 9 a.m. to 5 p.m. with airshows at 10:30 a.m. and 3 p.m. Admission and parking are free. Grandstand seats may be purchased for the airshow for \$1 each. Proceeds go to Navy Relief Society.

HEARST CASTLE TOUR BOOKED

Northrop Travel Club has scheduled its annual fall group tour to the famed Hearst Castle at San Simeon for Oct. 3 and 4.

The \$24.50 per person package includes round trip bus transportation, a double occupancy room at the Golden Tee Resort Lodge, Morro Bay, and a reserved tour of either the lower or upper floor of Hearst Castle.

The tour will stop enroute at Andersen's Split Pea Soup Restaurant and two hours at Solvang. Dining, dancing and entertainment will be available at Morro Bay during the overnight stop.

Reservations must be made with Personnel Activities by Sept. 23.

**IS IT NEWS?
CALL EXT. 4273
HAWTHORNE**

AUSA INVITES EMPLOYEES TO DISNEYLAND

Northrop employees have once again been invited to take part in a special Association of the U.S. Army "Family Fun Night at Disneyland" Oct. 23 from 8 p.m. to 1 a.m.

Northrop ticket outlets are offering 1,000 tickets for the event. Each sells for \$4.25 and includes admission to Disneyland, plus unlimited use of all attractions, exclusive of shooting galleries.



FRANK COXE AND HIS 1929 PIERCE ARROW CLUB BERLIN
Classic beauty will do 60 mph, is driven to work regularly by Mr. Coxe.

ONLY 95,000 MILES

Frank Coxe Restores '29 Pierce Arrow

Don't call Frank Coxe's 41-year-old car a relic. "It is a working automobile that I drive to work regularly," he said.

The car is a 1929 Pierce Arrow Club Berlin, a classic model that features such supposedly modern innovations as back up lights, carburetor heater, divider window between driver and passengers and leather upholstery.

Mr. Coxe, of the Electro-Mechanical Division, bought the car in extremely dilapidated condition in 1965 and then spent two years restoring it.

"Fortunately all parts were there," he said. "But the non-durable items—upholstery, chrome, nickel, and paint—were a total ruin."

He began the restoration by completely rebuilding the 366 cube eight-cylinder in-line 125 HP engine. Brakes and transmission were still in good condition. The rest of the time was spent on restoring the body. For this he removed the original upholstery and used it for the patterns. Then he rented an upholsterer's sewing machine and completed the inside. The front seat is black leather and

the back seat is maroon bedford cloth.

He did all the work himself, except the necessary replating of the trim. The only variation from original materials was a decision to use vinyl instead of leather on the top, since leather deteriorates so rapidly in desert heat.

The Pierce Arrow, despite its age, still compares favorably in operation with modern cars. He gets nine miles to a gallon of gas and cruises at 55-60 miles per hour. While the car, which has 95,000 miles registered on the speedometer, will go faster, the high center of gravity makes it more difficult to handle on curves.

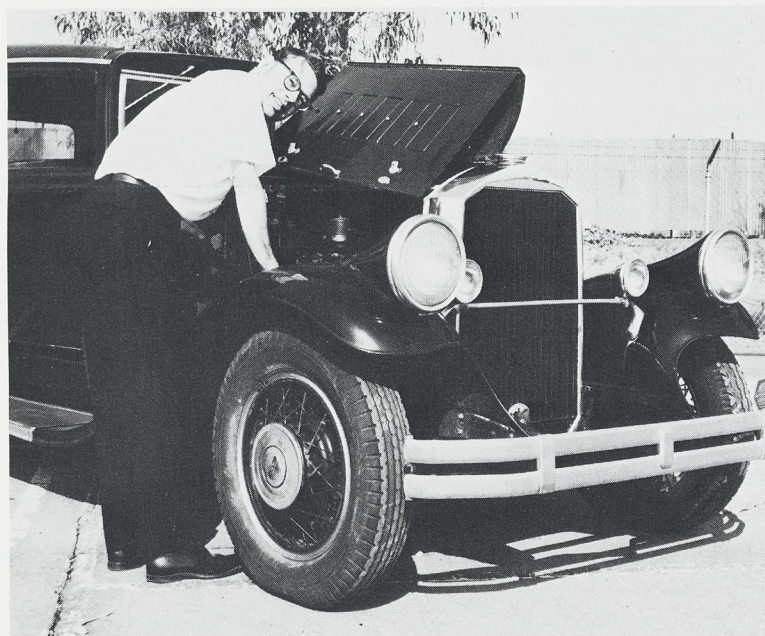
For those thinking of restoring an old car, Mr. Coxe has three good rules:

- Get a classic car—not all cars or models are classics.
- If you intend to drive it, get a 1929 or later model.
- Be sure it is as complete as possible for finding parts on many models is almost impossible.

In his own case, his restoration work was helped because of publications and information put out by the Pierce Arrow Society, a

club of car owners specializing in this company's products.

Also, he got technical assistance from a former engineer with the company. The Pierce Arrow was one of America's most famous cars during the 1920's.



TINKERING IS HALF THE FUN
Frank Coxe gives Pierce Arrow's engine tender loving care.

Northrop's Affirmative Action Plan Receives Favorable Reactions

Frank R. Smith, Corporate director—Industrial Relations and R. J. "Dave" Davidson, Corporate administrator—EEO, recently met in Washington, D.C. with top Department of Defense and Department of Labor officials to discuss Northrop Corporation's Equal Employment Opportunity Program.

Meeting with Robert J. Brown, special assistant to the President, L. Howard Bennett, deputy assistant secretary of defense, and John L. Wilks, deputy assistant secretary of labor, a copy of Northrop's Affirmative Action Plan was presented and was favorably received. The plan, as presented, was designed to meet the requirements of Presidential Order No. 11246 and Order No. 4 of the Department of Labor.

Directives

Order No. 4 is a regulation issued by the Department of Labor which sets forth the requirements for achieving equal job opportunity and those elements necessary for an acceptable Affirmative Action Plan. Presidential Order 11246 gives the Secretary of Labor the responsibility of ad-

ministering the Equal Employment requirements as they apply to government contractors.

Northrop to Join Fight On Rubella

The Northrop Corporation is joining other leading industrial and governmental interests in a campaign to head off an expected epidemic of Rubella (German measles).

Rubella epidemics follow a 6-9 year schedule, studies have shown, and the most recent one in 1964 resulted in an estimated 50,000 infants being born with severe defects.

Immunization

Immunization is the answer to preventing a tragic recurrence of the 1964 epidemic. And, while Rubella is a common and relatively mild childhood disease, it can become serious in adult women.

Rubella virus can cause babies to be born with abnormalities or the pregnancy can end in stillbirth or miscarriage. Nearly 50 per cent of infants born of mothers who contracted the disease in their early months of pregnancy are born with cataracts, heart defects, deafness and mental retardation.

Immunization can prevent such defects in most cases. All children from one year of age to puberty should be immunized. If youngsters don't contract the disease then the odds of the mother being exposed to it are reduced.

Limitations

The vaccine should not be given to pregnant women nor to women who may become pregnant within two months following immunization.

"All young children should get Rubella vaccine," says the U.S. Public Health Service. "And so should mothers who don't anticipate pregnancy for at least 60 days," might be added by the National Center for Voluntary Action.

The Washington, D.C.-based NCVA is trying to stamp out the Rubella threat through public information. Northrop personnel are urged to heed the NCVA warning and have their children vaccinated soon.

NORTHROP DAUGHTER IN AFRICA

Peace Corps Isn't So Peaceful For Maureen O'Malley

Life for a Peace Corps volunteer in East Africa can be both wonderful and terrifying, according to letters received from volunteer Maureen O'Malley, 24, daughter of the Ventura Division's James O'Malley.

After graduating from the University of Michigan (degree in zoology with a minor in biophysics) in 1969, Miss O'Malley learned the Swahili language at a Peace Corps training camp. She arrived in Nairobi, the capital of Kenya, in January.

Eight months later the second oldest of ten O'Malley children had seen villagers stone a government man, been beaten and robbed on a lonely road at night and harassed by prowlers around her mud hut as she fearfully tried

to sleep.

Miss O'Malley found the Peace Corps anything but peaceful at her third assignment in Kenya at the village of Maragoli, some 160 miles northwest of Nairobi.

She had made many, many friends among the villagers, many of whom had never seen a white person before, and when the government man came with orders for her transfer "the people of the community began to stone him and beat him with sticks. I couldn't believe it."

A Brave Act

She went on, "I put myself between him and the people knowing they wouldn't throw rocks at me." The unwelcome visitor wound up hospitalized with bad bruises.

"Many Kenyans resent the presence of whites in their country," she wrote in June. "I was a victim of this feeling the other night."

Returning to her village after

dark Miss O'Malley was stopped by two men with a flashlight. After shouting in Swahili that she was going home she headed for a nearby bus stand in hopes of finding protective company.

After a lonesome half hour at the bus stand she started walking home again. "It was going to rain so there were no stars or moonlight—it was dark as pitch."

"After a while I noticed a flashlight approaching behind me. It kept going on and off. I thought, oh no, but hoped it might be just a bicycle. Then I heard two men running toward me."

"Then I knew what was going to happen . . . it was frightening to say the least! Anyway, they grabbed me and wanted my purse. When I wouldn't give it to them they hit me on my head a couple of times. I socked one back and kicked the other guy."

"Then he brought his flashlight up over my head and at that point I let go of my purse

and started running." She lost her money, passport, the school mail and her checkbook.

Another event was equally hair-raising. Annoyed by prowlers around her mud hut, (her native neighbor's hut was ransacked one night), Miss O'Malley learned the intent of her intruder from the villagers.

Her potential abductor fancied himself as her swain and local custom is for the would-be bridegroom to kidnap his lady and then bargain with the father as to the price of her hand in marriage. This man, however, was put in jail.

When not teaching English, biology and chemistry, Miss O'Malley has seen the countryside, gardened extensively and developed very rewarding relationships with the Kenyans.

There's little question that the Peace Corps experience has been a meaningful one so far. She has 16 months of service remaining.

Savings Bonds Earning More

Northrop Corporation employees who buy U.S. Savings Bonds through payroll deduction will be interested in a one-half per cent bonus to be added to the interest rate paid to longer-term holders of bonds.

The bonus will raise the effective interest rate on new bonds, when held to maturity, from five to five and one-half per cent.

The increase, which was retroactive to June 1, 1970, will also result in improved yields on outstanding Series E and Series H Bonds. Thus, there will be no advantage to redeeming present bonds to buy new bonds.



BATTLING THE MIGHTY COLORADO RIVER

Roller coaster view of rapids is provided above for members of the Ed Light party as it navigates one of many rapids in the Grand Canyon area of the Colorado River. Mr. Light skipped the ride below to snap this photograph of his party navigating still another area of white water. Although his camera was doused on the trip, he captured many of the highlights on film.



Grand Canyon Raft Trip A Thriller, But The Lights Ready to Go Again

"Now we are ready to start our way down the Great Unknown..." excerpt from the diary of Major John Wesley Powell, one of the first men to travel and map the Colorado River.

And as it was an adventure for Major Powell, so it was for Ed Light, manager of Advanced Tactical Avionics for the Aircraft Division, and his wife, Barbara, who tackled the mighty Colorado on a raft during their vacation last month.

Although the Lights' trip took place nearly a hundred years after Major Powell's, they encountered some of the same problems: jagged rocks, swirling rapids, equipment failures, no communications, fear on the part of some members of their party.

The raft they traveled on during their journey was 20 feet wide and 40 feet long. Its space

was shared with nine other vacationers and three guides. The raft, supposedly impossible to overturn, was controlled by an outboard motor.

The party encountered its first problem — but not the last — even before they started on their journey. Difficulties in inflating the rubber raft caused a four-hour delay in their departure time. This allowed them only one hour of travel on the river before making camp for the night.

The next day the raft approached its first rapid — and its first serious problem. "As we were moving over the rapid our motor failed us," said Mr. Light. "The raft began turning every which way, moving wherever the river took her. Each time we would hit a rock, we would do more damage to the boat. Finally, after what seemed like ages, we passed the rapid and were able to beach the boat."

No Place to Go

An assessment of the damage revealed that some of the steel members of the raft were bent enough to prevent the party from safely crossing the next rapid. "We were stuck," Mr. Light said.

Luckily, however, the raft was beached near the Grand Canyon Phantom Ranch, a well-known place where tourists can take mule trips down into the canyon.

"One of our guides used the ranch's telephone and made arrangements for an air-drop of the necessary equipment needed to repair the boat and motor," said Mr. Light. "Almost ominously," he added, "one of the women in our party had a dream that one of us wouldn't survive the next rapid."

The woman was almost right. The next rapid the raft faced was the biggest and most dangerous rapid on the river.

"Everything was going just fine when we entered the rapid," Mr. Light recalled. "Then, all of a sudden the engine quit on us again, this time breaking the drive shaft. We were in deep trouble. The raft was slammed up against the side of the canyon wall again and again. One time, the nose of the raft hit so hard that it drove the rear of the boat under water at a 60 degree angle. Two of our crew men were thrown overboard by the jolt, and the third one had no choice but to jump. And then, almost miraculously, the boat came back down and the crew men were able to jump back into the boat — almost in one motion."

The guides managed to get the raft over the rapid and beached; only this time there was no nearby ranch to call for help. The party was stranded. Alone. It would be at least two days before they would be overdue and search and rescue operations initiated.

"Amazingly, everybody was in good spirits," Mr. Light said. "They seemed certain that somebody would find us."

Early that morning the party built a distress signal, which was spotted by a low-flying airplane. "The pilot waved his wings at us so we knew help would be on its way as soon as possible," Mr. Light said.

What a Party

The next day a helicopter arrived — in a blinding rainstorm — with food and a new motor. The group, jubilant over being found, threw a party that evening and got a good night's sleep before completing the last leg of their journey without incident the next day.

With all the problems they encountered on their trip, one would think that the Lights had had enough of the Grand Canyon. "Not hardly," says Mr. Light. "My wife and I plan to go back for some more next year."

Perhaps the Lights have the same feeling as did Major Powell after he completed his first trip down the river:

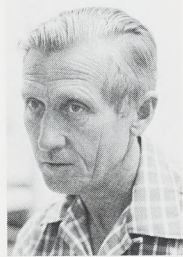
"Now the danger is over; now the gloom has disappeared. The river rolls by us in silent majesty; our joy is almost ecstasy. We sit long after midnight, talking of the Grand Canyon..."



DRESSED FOR RIDE

Barbara Light shows off the typical costume of a lady "river rat" in one of the calmer moments of the trip. Incident-plagued trip found most party members wet a majority of the time, she reports.

WE ASKED THEM — How Do You Think The Pollution Problem Will Be Solved?

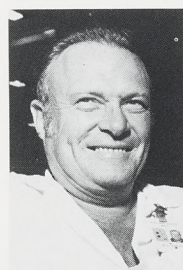


Otto Goerisch, lab technician, Ventura:

By the people who caused it. By "people" I mean everyone who discards refuse improperly. Everyone must contribute to the effort.

Myrla Mapel, secretary, Electro-Mechanical:

We either have to adapt it or control it. Perhaps what would help most is more publicity because I don't think people are really aware of the seriousness of the problem.

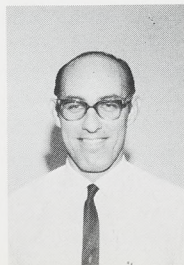


H. G. Wascher, structural mechanic, Aircraft:

I think the steam powered car may be the solution to the pollution problem. Also, I like the idea of the natural gas cars that are being tested now.

Warren Hancock, cost estimator, Electronics:

A concentrated effort of time and money to define exactly what the pollution problem is. The next step then is to establish priorities and take action to solve the most pressing problem and continue until there is no more pollution.

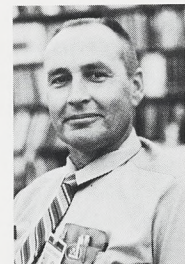


Betty Goodrum, structural assembler, Ventura:

By getting a new engine for the automobile, for one thing. Another thing is that there are too many people. While our population has grown our environmental problems have also grown.

Jack Lahn, facilities engineer, Electro-Mechanical:

I don't think it will be solved until people understand that it is a total problem. Most think of smog only. Pollution includes air, water, land, noise in general and even sonic booms.



Frances Browning, receptionist, Aircraft:

Most of it comes from engines. We have the smartest technicians in the world. If they were given sufficient funds and opportunity, they could make an engine to cut pollution. If we are smart enough to send men to the moon, we can stop pollution.

Ted Passaris, federal cataloger, Electronics:

I'm somewhat skeptical in that I don't think the pollution problem will ever be solved entirely. If it is, though, it will take a worldwide effort to do so, with every country agreeing to use their own resources.



Classified

Classified ad service is provided free of charge to all Northrop personnel. Ads for agencies, commercial enterprises and private businesses are not accepted. The Northrop News reserves the right to edit or omit ads. Obtain ad form C67 from organization clerk and mail ad to Northrop News, 170, zone 62. Ads are limited to one item and one ad per person each issue. Deadline is noon Wednesday, one week before publication.

Automobiles For Sale	
Pontiac, 1967 LeMans, 3-spd. on floor, 326 V-8, 38,000 mi., \$1,250. 213-372-5239.	A
Rambler, 1965 Classic, 48,000 mi., \$150. 213-423-2901.	A
Dune Buggy, VW pwrd., f/glass body, drs., dble. rollbar, tuned exhaust, \$975. 213-396-6739.	A
Rambler, 1961 Custom Classic, 4-dr., auto. trans., rebilt. eng., \$75. 213-346-2583.	A
Mustang, 1965, 289, 3-spd., modified suspension & exhaust, \$1,050. 213-377-3767.	A
Buick, 1965 Riviera, full power, \$1,575. 213-869-2673.	A
Mercury, 1969 Cougar XR-7, fact. a/c, 351 cu. in., p/b, p/s, \$2,900. 714-528-3039.	A
Volkswagen, 1963, rebilt. eng., sunroof, \$670. 213-371-2091.	A
Triumph, 1963 TR-4, \$500. 213-321-0368.	A
Station Wagon, 1964 Datsun, 1200 cc, \$625. 213-396-5837.	A
Lincoln, 1965 Continental, full power, air, \$870. 714-892-0460.	A
T-Bird, 1957, porthole top, 352 eng., 4-spd. trans., \$650. 213-679-9335.	A
Station Wagon, 1957 Mercury, \$100. 213-326-5448.	A
Truck, 1956 Studebaker, ¾-ton, \$395. 714-637-7667.	A
Corvair, 1964 Monza, 2-dr., 4-spd., \$175. 714-528-2389.	A
Chevrolet, 1968 Nova, auto., air, p/s, p/b, \$1,495. 213-862-3027.	A
Porsche, 1967 Model 912, \$3,900. 213-860-2305.	A
Cougar, 1967, 3-spd., tape, \$1,500. 213-534-1974.	A
Karmann Ghia, 1968, headers, new tires, \$1,595. 714-838-3740.	A
Ford, 1967 Galaxy 500 XL, 2-dr. h/top, 390 eng., r/h, p/b, p/s, \$1,550. 213-581-5208.	A
Buick, 1963 Le Sabre, 4-dr. h/top, orig. owner, \$500. 714-879-9616.	A
Triumph, 1969 Spitfire Mark III, convt. top, \$1,850. 213-324-2972, 213-545-3106.	A
Oldsmobile, 1966 Cutlass, \$445; min. bids for Barracuda, 1968, \$1,145; Triumph, 1967 Spitfire, \$945; Cadillac, 1966 convt., \$1,695; Continental, 1964, \$745. Credit Union ext. 1117.	A
Thunderbird, 1963, p/s, p/b, a/c, \$650. 213-327-4361.	A

Household Items For Sale	
Vacuum Cleaner, Electrolux, bag-type, \$30. 213-779-6842.	B
Bedroom Set, walnut, dble. dresser & mirror, h/board, uphol. chair, \$75. 213-324-7259.	B
Crib, mattress, \$15. 213-323-4729.	B
Bar Stools, 3 Mediterranean motif, gold uphol., dk. wood, \$75. 213-644-2784.	B
Room Dividers, 2 green plastic, \$5. 213-675-9667.	B
Desk, corner-type, matching swivel captain's chair, solid maple, \$40. 213-378-3017.	B
Sofa, & chair, beige fabric, modern style by Kroehler, \$40. 213-327-2279.	B
Desk, light mahogany, 7 drwrs., \$40. 213-343-7880.	B
Sofa, & chair, beige naugahyde, \$90. 213-373-2317.	B
Sofa-Bed, Early American, gold & brown, storage space, mattress, \$85. 213-834-3796.	B
Refrigerator, frost free, 6 mos. old. \$350; other household items. 213-679-6195.	B
Mangle Ironer, Conlon auto., dual heat control, knee & hand actuated, \$25. 213-325-2730.	B
Bed, full dble. size, frame on casters, box springs, mattress, \$20. 213-377-1075.	B
Bedroom Set, walnut, dble. bed w/box springs & mattress, triple dresser w/mirror, 2 night stands, bookcase h/board, \$75. 213-834-0586.	B
Rollaway Bed, mattress, \$20. 213-376-2122.	B
Cradle, Baby Line, used 2 mos., \$25. 213-371-3867.	B
Bed-Divan, opens to sleep 2, beige print, Early American, \$30. 213-675-6855.	B
Refrigerator, Coldspot, & stove, Columbus 4-burner, gas, modern, \$65 or sell sep. 213-644-8860.	B
Dinette Set, Duncan Phyfe, blond, table & 4 chairs, table 32" wide, can be extended to 72" in length, \$35. 213-673-1133.	B

Miscellaneous For Sale	
Engine, Chrysler 383 cu. in., \$150. 213-328-9322.	C
Typewriter, SCM portable, elec., case, auto. carriage return, \$100. 213-679-7405.	C
Piano Accordion, La Scala, 120 bass, 7 shifts, \$75. 213-675-6286.	C
Doughboy Pool, 15' x 4', filter, 8' slide w/ ladder, liner 1 yr. old, \$35. 213-344-8896.	C

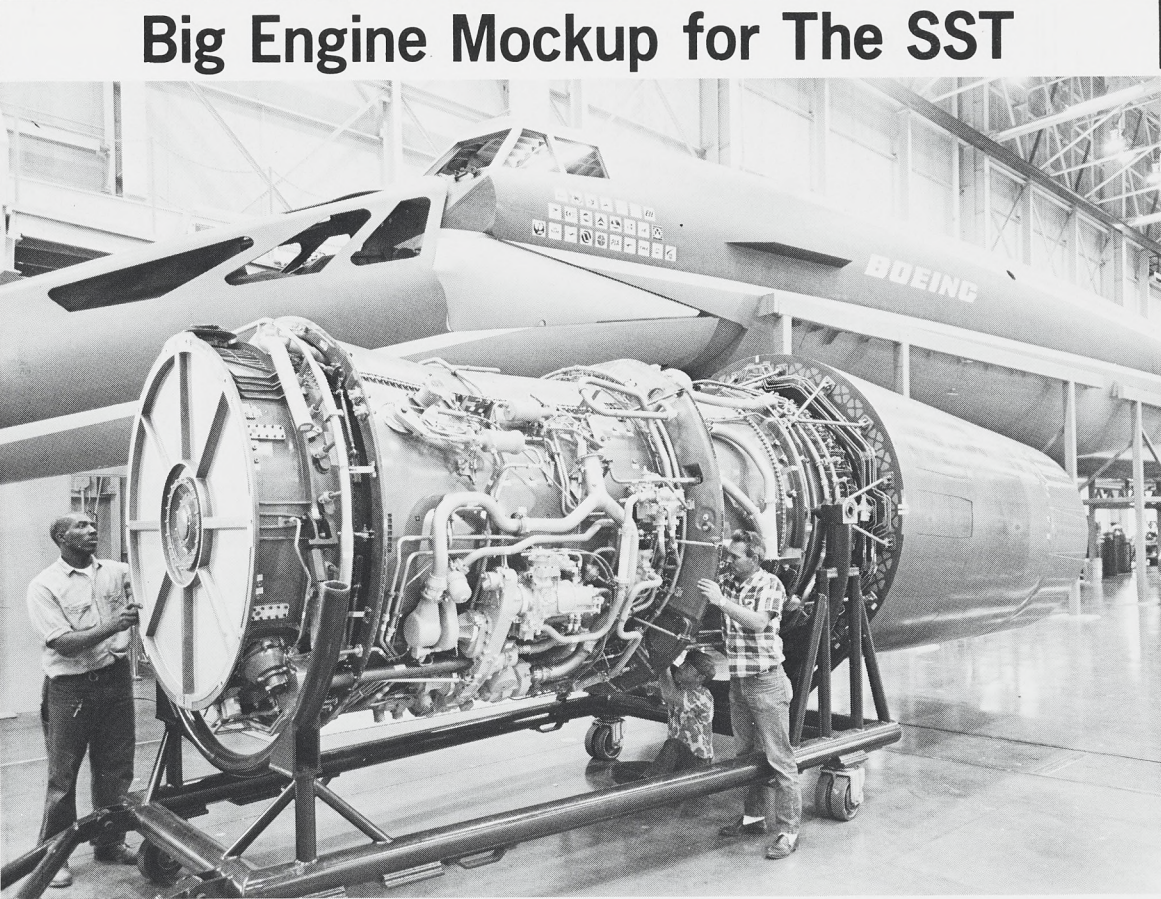
Miscellaneous For Sale	
Deer Rifles, 8 mm Mod. 98 German Mauser & British Enfield Mark 4, cal. .303, \$60 ea. or \$110. 213-672-4957.	C
Surfboard, Rick, 8'6", \$30. 213-320-3430.	C
Mags, 4 Ansen Sprint & positraction tires, mounted & balanced, \$195. 213-671-7875.	C
Surfboard, Jacobs, \$30. 213-377-4623.	C
Organ, Lowrey Holiday, 2-manual Leslie spkr., auto. orchestra cont., & bench, \$500. 213-676-5839.	C
Dog, Alaskan Malamute, AKC, 5 mo. old, has all shots, \$150. 213-549-1658.	C
Pinball Machine, 1967 Williams Touchdown, guaranteed, \$225. 213-372-1386.	C
Bowling Ball, ladies' & bag, \$10. 213-675-6020.	C
Golf Clubs, matched, registered, Spalding Pro Flite woods, 1-3-4-5, \$20. 213-323-6795.	C
Lots, 2 adjoining, in California Pines, Unit I, ¾ miles from stream, paved county rd., lake, lodge, \$2,500 ea. or \$4,500. 213-675-7822.	C
Luggage Carrier, cartop-type, waterproof, zippered, used once, \$20. 213-833-7306.	C
Trailer Hitch, Eaz-lift, \$25. 213-370-7749.	C
Motorcycle, 1963 BSA, 650 cc Gold Star Twin, \$595. 213-751-3014.	C
Relaxacisor, \$50. 213-674-6076.	C
Acreage, 5 acres, Antelope Valley, near paved road, \$400 dn., \$6,000. 213-378-1026.	C
Air Conditioner, Emerson, 5,000 b.t.u., \$50. 714-630-2532.	C
Autoette, 3-whl., elec., for invalid or elderly, incl. batteries & charger, \$425. 213-372-4907.	C
Pups, collies, registered AKC, sable & whites, \$50. 213-834-7535.	C
Stereo, Magnavox combination, 2-pc., \$125. 213-675-0549.	C
Home, 4-bdrm., 1¼ bath, cpts., dps., 2 patios, 5 min. from Electro-Mechanical Div., cash to loan, G.I. at 5¼%, \$27,950. 714-635-3315.	C
Tonneau Cover, black, MGB, fact. orig., never used, \$40. 213-324-9223.	C
Truck Tire, 750x16, & split rim, 8-bolt Ford, \$25. 213-881-2604.	C
Bicycle, boy's 24" Sears Spyder, \$30. 213-326-5979.	C
Motorcycle, Honda, 160 cc, 7,000 mi., elec. starter, custom extras, \$310. 213-325-4580.	C
Motorcycle, Honda CL 125, 1,500 mi., \$350. 213-324-0366.	C
Lots, 2 commercial 60' x 105', Salton Sea Beach, 6' chain link fenced, all utils. in, trailer & enc. cabana, \$10,500. 213-534-3021.	C
Pups, toy poodles, AKC, \$75. 213-328-3182.	C
Record Player, 1923 Victor, walnut finish, \$85. 213-324-9769.	C
Ice Skates, women's size 7, worn 5 times, inc. guards, \$10. 213-542-1487.	C
Mini Bike, 3½ h.p. Briggs & Stratton eng., 9 mos. old, \$85. 714-962-4134.	C
Airplane, 1961 Cessna 210 A, fully equipped, \$12,500. 213-399-4168 or Credit Union ext. 1117.	C
Sailboat, Chrysler Barracuda 13, Marconi rig w/custom fitted trailer, \$640. 805-495-2937.	C
Machinist Tools, Starrett, micrometers, radius gages, dial indicator & base, seldom used, \$100 or sell sep. 213-320-7065.	C
Television, 19" Emerson, all-channel, portable, used very little, \$50. 213-439-6432.	C
Motorcycle, 1970 Yamaha 125, extras, \$435. 213-374-6841.	C
Drums, Ludwig bass, mounted tom-tom, Speed King pedal & seat w/2 cases, \$150. 213-633-6106.	C
Television, 13" G.E. Adventurer II portable w/stand, 2 yrs. old, \$45. 213-679-6247.	C
Organ, Magnus Chord, 12 chord buttons, \$20. 213-532-7853.	C

Wanted to Buy	
Rims, 4 9.00 x 16.5, 8-lug, reasonable. 213-377-3487.	D
Rifle, .22 cal., bolt action, single shot, good condition. 213-325-7705.	D
Recording, 1957-58 rhythm & blues of Insha-Allah by Sonny Knight, or borrow to make recording. 213-437-1183.	D
Lawn Edger, gasoline powered. 213-679-7361.	D
Travel Trailer, late model, 17 to 20', must be self-contained & reasonable. 213-327-8047.	D
Pistol, used, 357 magnum, in good condition. 213-532-4184.	D

For Trade	
Dining Room Table, & 6 chairs, dropleaf rectangular, full size, trade for smaller, preferably round, birch finish, equal quality dining set. 213-343-6948.	E

Free (To Be Given Away)	
Kittens, approx. 2 mos. old. 213-377-0146.	F

Rentals Offered	
House, 4-bdrm., family rm., 2 baths, near schools, P. V. Pen., \$450 mo. 213-378-9660.	G
Cabin, Moonridge, Big Bear Lake, 3-bdrm., 2 baths, f/place, completely furn., family only, \$125 wk., \$50 w/end. 213-326-7232.	G
Cabins, Lake Gregory & Crestline, sleep 6, \$25 w/end; \$60 wk. 213-391-2040.	G
Apt, 2-bdrm., furn., cpts., dps., bltns, pool, near El Camino, married couple, \$190 w/ closed gar.; \$170 w/out gar. 213-329-5986, 213-324-8373.	G



FULL-SCALE MOCKUP of the world's largest and most powerful jet engine has been delivered by General Electric to The Boeing Company's Supersonic Transport Division. Here it rests in front of SST mockup. Essentially identical to actual jet engines, four of them, which will power SST, the mockup will be used in systems integration. Each of four SST engines will develop more than 67,000 pounds of takeoff thrust. Northrop Corporation has been selected to build fuselage components for the SST.

Ventura Men Get New Duty Assignment

Two Ventura Division men have been re-assigned to new duties by Northrop.

Transferring to Chicago, Ill., is Bill Shea, former chief of the Direct Budgets group at Ventura. Mr. Shea, a 10-year Northrop employee, is now working on a Northrop Electro-Mechanical Division project in the Windy City.

While Mr. Shea was packing his winter clothes, Ron Lancaster, a Ventura contracts administrator for the past six years, was buying a tropical wardrobe.

Mr. Lancaster's new Northrop job finds him in San Juan, Puerto Rico, where he will administer the finances in a Northrop-led industrial project which will develop a new airport system for South-west Puerto Rico.

IS IT NEWS?
 CALL EXT. 4273
 HAWTHORNE

Rides and Riders	
Rides Offered	
8 a.m. — 4:42 p.m.	
Imperial & Lakewood Blvd., Downey. Morris Brown, Aircraft ext. 4487, 213-861-8508.	
Rides Wanted	
8 a.m. — 4:42 p.m.	
Imperial & Lakewood Blvd., Downey. Morris Brown, Aircraft ext. 4487, 213-861-8508.	
Rentals Offered	
Vacation Cabins, Idyllwild, 1 & 2 bdrm., stream, patio, f/place, \$30-\$35 w/end, \$65-\$80 wk. 213-868-8040.	
Rentals Wanted	
Home, 2 or 3-bdrm., w/yard space for 1 child. 213-372-7726.	
Child Care	
Child Care Offered, children 18 mos. through school age, hot lunches, fenced yd. 213-324-8752.	
Babysitting, my home, all hours, all ages, hot meals, fenced yd., reasonable, close to Northrop, playmates & plenty of toys. Box 1801.	
Personals	
I want to take this opportunity to thank all of R. J. "Frenchy" LaMontagne's friends at Northrop for their many kind acts & expressions of sorrow following his death. GEORGENE LA MONTAGNE & SONS.	
We wish to thank our many friends at Northrop for their kindness during my recent illness. GIL & RUTH HARLAN.	

SOCCKER TEAM SEEKS PLAYERS

The Northrop Soccer Club is preparing to launch its 1970-71 season shortly and is seeking players, with or without previous experience, according to Norm Jackson, NRC commissioner.

Playing in the Industrial League, the Northrop entry finished the last season as the loop's

runners-up team. Regulation play is set to begin Sept. 27 with games to be played each Sunday.

Practice sessions will begin shortly. Interested players may contact Mr. Jackson at ext. 2675, Aircraft Division.

EDITOR'S NOTEBOOK

The mails this week bring a couple of items, one whimsical, the other nostalgic. First, there is an invitation from the Confederate Air Force to attend its annual airshow to be held Oct. 25 at Harlingen, Tex. The Confederate Air Force, in case you do not know, is a non-profit organization dedicated to the preservation of World War II combat aircraft in flying condition. It maintains headquarters at Rebel Field, Harlingen.

The second item reminds us that this week the United Nations begins its 25th year of operations with the opening of the 25th General Assembly in New York. On June 25, 1945, although the second World War was still raging in the Pacific, representatives of 50 nations gathered in San Francisco to sign the Charter of the United Nations. September 18 will mark the annual United Nations Ambassadors Dinner. And Oct. 18-24 will be observed as United Nations Week with special events at the U.N. and around the world.

And here is another name for our list of Northrop personnel who have selected the Boeing 747 for their personal travel. Ben Garcia, Northrop Data Processing, and his wife flew from Los Angeles to New York aboard TWA and reported "it was an experience I'll never forget."

Engagements and weddings are normally not covered in the Northrop News because of space limitations. But when a Ventura Division librarian meets an Aircraft Division engineer on a Rec Club-sponsored South American tour and they wind up engaged, it is worth mentioning.

David B. Morse, of Advanced Design, and Adrienne E. Forlano, chief librarian, first met in Cuzco, Peru in February of 1969. "We were on a tour of six countries with 22 other Northrop people," Miss Forlano remembers, "and we'd never met before." In the spring they became engaged. Oct. 3 is the wedding date.

NORTHROP NEWS

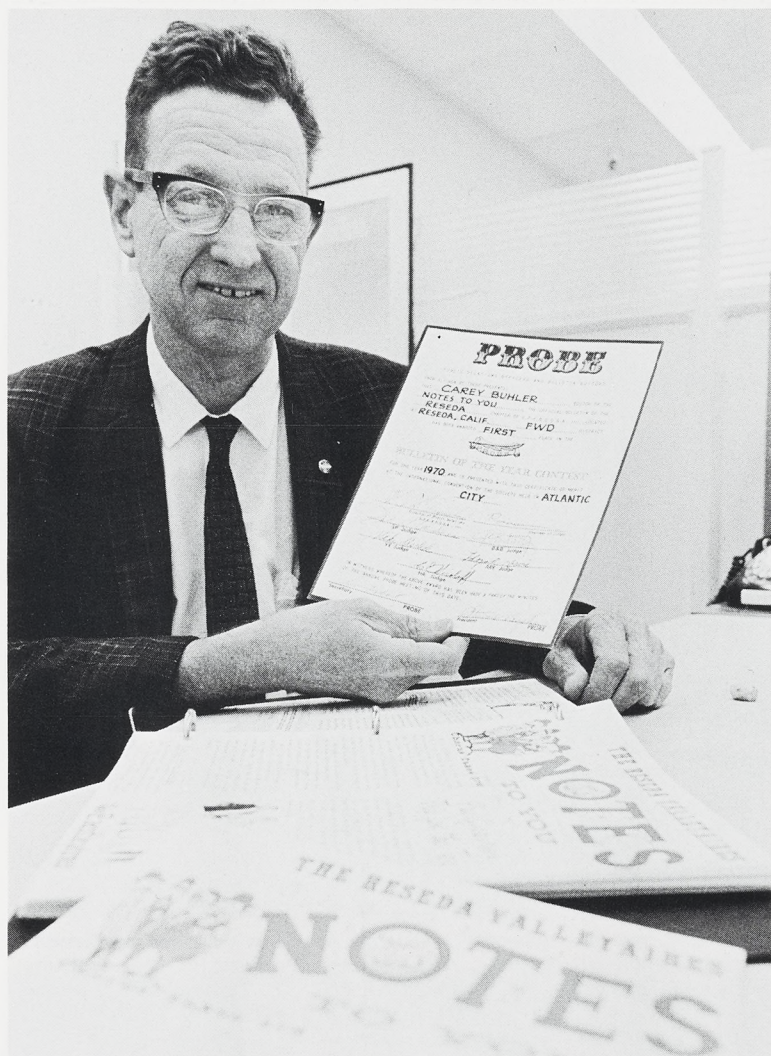
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'NOTES TO YOU' IS A WINNER
Carey Buhler displays prize from barbershoppers.

His Barbershop Bulletin Is The Best in The World

Ventura Division Paradyamics Engineer Carey Buhler is the best of 700 chapter bulletin editors in the international Society for the Preservation and Encouragement of Barbershop Quartet Singing in America.

Mr. Buhler's monthly bulletin to the 118 members in his Reseda chapter earned 434 out of a possible 500 judging points, edging out a Maryland chapter's entry with 424 points.

The 8½ by 11-inch bulletin is 8 to 10 pages of barbershop news of the chapter, the five-state Far Western District and the international society.

As editor, Mr. Buhler writes more than half of the material and lays out the pages and headlines. His wife, Mary, is the bulletin typist.

Being awarded the "Bulletin of the Year" distinction by a professional judging panel at the Atlantic City, N.J., national confer-

ence was a mild surprise to Mr. Buhler. His first entry last year finished fourth internationally.

"I was only in the chapter six months or so when they asked me to do the bulletin in January of last year," he told the Northrop News. Mr. Buhler sings bass in the chapter chorus along with Venturans John Lawrence and Tom Lucero (a lead tenor).

First Attempt

Although it is his first real attempt at the bulletin field, Mr. Buhler's success is established. He assigns much of the credit to the critiques of his paper given by Peter Toll of the Northrop News and a retired editor who sings in the chapter.

"My first bulletins weren't very good, but now apparently they think I've improved," he says modestly. His award consisted of a hand-lettered SPEBQSA scroll.

SKYDIVING INSTRUCTOR

Computer Man Turns to Air on Weekends

When somebody tells Ralph Reeves to take a flying leap, he does; sometimes from 13,000 feet in the air.

Mr. Reeves, a Northrop Data Processing senior equipment operator at the Ventura Division, is a veteran skydiver with more than 200 jumps to his credit.

Now a skydiving instructor licensed by the Parachute Club of America, Mr. Reeves began his high-flying hobby two years ago.

"Dan Clelland, also of NDP at Ventura, and I made our first jump together with Tony Longo (son of Ventura's Fred Longo) near Bakersfield," he recalls.

"Tony jumped first and Dan was next. We waited for Tony's chute to open but it didn't. Finally he pulled the reserve chute but suffered a back injury on landing."

Shook Up

Mr. Clelland's confidence was badly shaken. "I don't know if I would have had the presence of mind to pull that second chute on my first jump," he said. "Luckily my first chute opened right away."

Although Mr. Clelland and young Longo haven't jumped

since, Mr. Reeves has not only pursued the pastime but has cajoled NDP Control Clerk Jane Nelson into three jumps.

"It's a great sport," Mr. Reeves explains. "And with that second reserve parachute the chances of injury are small."

He has jumped from 13,000 feet and fallen 11,000 feet (from 125 to 180 mph) before opening his parachute. His narrowest escape came when his main chute malfunctioned and he popped the second one just 700 feet above the ground. "That's just three seconds from impact (without the chute)," he explains.

His jumping equipment is basically two 26-foot diameter para-

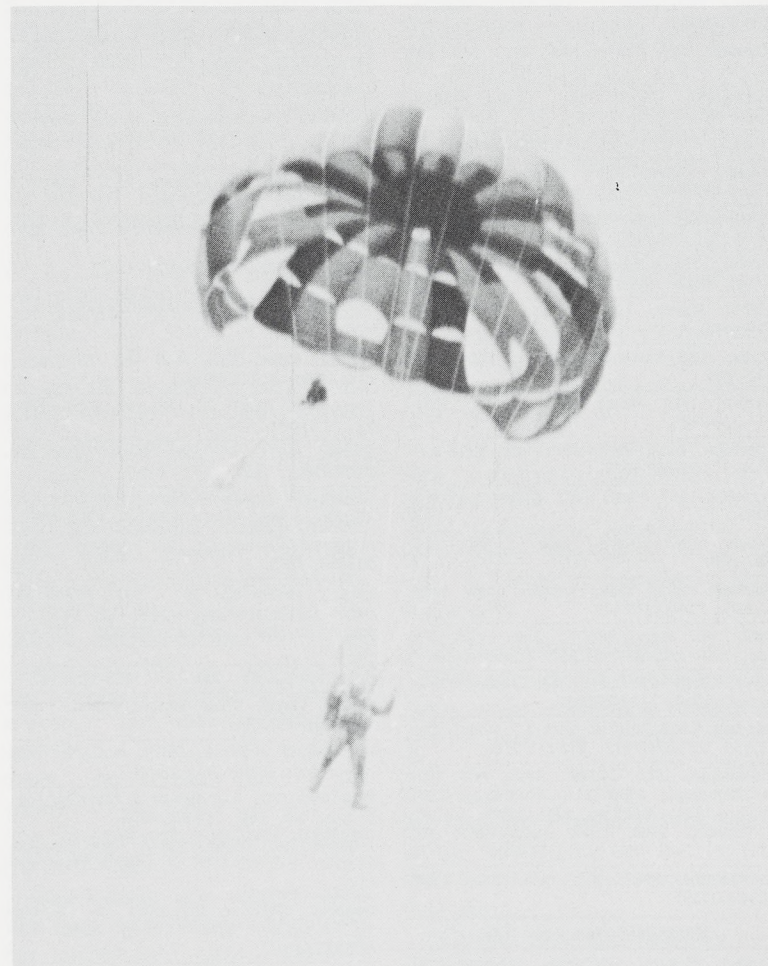
chutes. "The jumper packs his main chute and a licensed rigger packs the reserve," he noted. Chutes can be rented or purchased for \$60. Competition chutes cost as much as \$300.

Mr. Reeves is an accomplished competitor in the sport. Competition is based on jumping for accuracy, trying to hit dead center in a 12-meter diameter circle on the ground. A "bullseye" in the circle is 3 centimeters in diameter or about the size of the palm of your hand.

Still perfecting his skill, Mr. Reeves has competed in the local (Taft-Bakersfield) meets and statewide meets. Someday he hopes to compete in the national event.



Mr. Reeves



CLOSE TO TOUCHDOWN POINT
Ralph Reeves is right on target on competitive jump near Taft.

REC CLUB TO SEE DODGERS PLAY S.F.

The last Ventura Division Recreation Club-sponsored trip to a major baseball game in 1970 will take place Wednesday, Sept. 23 when 45 Venturans will see the Los Angeles Dodgers play the San Francisco Giants.

Reservations at \$2.50 per person include a round trip bus ride and a reserved seat. The bus will start at the Ventura Division and will stop twice in the San Fernando Valley.

VENTURANS SHARE IN AIAA SECTION HONORS

The Pacific Missile Range Section of the American Institute of Aeronautics and Astronautics (AIAA), including 25 Ventura Division men, has been judged the outstanding section in Region VI for the 1969-70 year.

Announcement of the honor was made at a meeting of Region VI (West Coast) officers in Los

Angeles.

The PMR section will now be evaluated against the corresponding winners from the other five AIAA regions. The PMR section has 235 members in Ventura County and Hawaii.

Ventura Division members include John Atkinson, Hal Barber, Bill Bridwell, Hugh Cameron,

Ben Collins, John Cushman, Ed Ewing, George Grogan, Ray Lavi and Paul Lawrason.

Also, Rollin Lemm, Bob Lochemes, Fred Mickey, Nick Mocerino, Jack Moeller, Jim O'Malley, Hal Ort, Robert Provart, John Robinson, Ken W. Rogers, Bob Ross, Erwin Wandrey, Don Warner, Dean Wolf and Bob Worth.

Here's The Way To Catch 'Em On Rec Club Fishing Trip



JACK FISHER GETS A BITE
And Don Kohn starts making pictures of the battle.



BOY, HE'S A SCRAPPER
But the retired Northrop 30-year man fights, too.



SUCCESS—A 23-LB. ALBACORE
Bait boy displays catch as John Lawrence admires prize.

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VENTURA DIVISION EDITION

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HARRY CASELDINE AND SELLARS BUSH RECEIVE AWARDS
Don Warner, left, with Mr. Caseldine, and Wes Steyer, right, with Mr. Bush.

NASA Honors Three Venturans For Work on Technical Brief

Harry Caseldine, Sellars Bush and the late Ronald H. Smith have been honored by NASA with publication of a technical brief on a space-related project with commercial applications.

Mr. Caseldine, Mr. Bush and Mr. Smith's widow each received \$25 checks from NASA upon publication of the brief which deals with cushioning the radio equipment in a space vehicle upon landing on a planetary body.

Mr. Smith is listed as the author of the paper "The Design and Development of Radio Frequency Transparent Omnidirectional Energy-Absorbing Element Systems" which initiated the brief.

The paper, with Mr. Caseldine providing design and calculation information and Mr. Bush fabricating the hardware, lists Mr. Smith as principal author.

The men were informed of the award in a letter from Ernest W. Brackett, chairman of the

NASA Invention and Contributions Board. It is the first such award to Ventura Division personnel.

Work on the paper was done under a contract to NASA's Langley Research Center in 1965-66. The project goal was design of a round, radio-equipped object which could land on another planet and then radio information back to earth.

Designing the hemisphere some 26 inches in diameter, the men applied the principle of the automobile's collapsing steering wheel to the project. "We had to use a radio clear material so we used plastic," Mr. Caseldine explained.

Easing Impact

"Upon landing the radio would be intact and able to transmit," he added. The main feature called for the crushing impact of the landing to be absorbed by an outer plastic layer of collapsible, close-spaced tips. Inside, the radio gear could be cushioned in a

foam rubber-like material.

Although the specific procedure has not been applied to NASA's space program, NASA felt the information and data were worthy of publication and public disclosure.

Mr. Caseldine has been with Northrop seven years. He is assigned to the Target Systems Project office. Mr. Bush, a Materials and Processes group engineer at the time of the project, is now working in the boron composites program at Ventura.

AFTER 15 YEARS

Jan Leaves Credit Union

Jan McClune has ended a 15-year term of service at the Ventura Division Credit Union "to become a housewife again."

Mrs. McClune has been manager of the Credit Union since 1959 and first joined that office just three months after it opened. The new manager will be Peggy Heacock, Mrs. McClune's assistant for the past seven years.

Mrs. McClune was feted with a small party by the Credit Union's board of directors on

Art Festival, Air Show Set For October

Two shows—one for art fans and the other for aircraft buffs—are scheduled for October and may be of interest to Ventura Division personnel.

The air show is the big Space Fair '70 at Pt. Mugu, headquarters of the Pacific Missile Range just 15 miles northwest of Northrop's Newbury Park facility. The show is Oct. 17-18.

Admission is free for the big air show and also for the Annual Palos Verdes Community Art Festival, called Art for Fun(d)s Sake, taking place Oct. 10-11 on the grounds of Northrop's Electronics Division Palos Verdes facility.

Both of these events (your Northrop badge is required for free art show admission) are billed as the biggest of their kind in Southern California.

Space Fair attracted 208,000 to the Navy complex last year and this year's activities, including old and new airplanes and missiles, skydivers and displays, is expected to equal that figure.

The big art festival, being held on Northrop property for the eighth year, features all types of art, sculpture and ceramics. Special arrangements can be made with the artists to buy displayed items.



A MONEY SAVER
John Jarose displays his idea.

Container Idea Earns Him \$198

A leadman in the 747 Resin Mixing and Repair Shop earned a cash award of \$198 as 16 Ventura Division personnel shared \$749 for their cost-saving ideas.

John Jarose, a five-year Northrop employee, suggested a new

container for resin mixing. Resin is mixed in small batches (about a saucer full) 20 to 30 times each day.

"We were taking ordinary cans and turning them upside down and using the bottoms for this little amount," Mr. Jarose explained. "Now we have small containers at much, much less expense."

A co-worker, Jim Montoya, received \$140 for his idea to speed up routing of honeycomb before potting. He used to do it by hand but now, by machine, it takes less than half the time.

Linda Bennett, of Plastics Fabrication, earned a \$61 bonus for speeding work on T-38 and F-5 fuel tanks and Hazel Johnson received \$57 for another cost saver.

Roy Fox saved time in the overall plastics curing process and received \$54 for his idea while Bob Hicks, also of Plastic Fab, got a \$49 check for improving fuel tank work with new die cuts.

Also receiving awards for cost-cutting ideas were M. M. Moore, \$29; W. R. Leeds, \$25; J. W. Tremblay, \$24; and E. O. Pollard, \$20.

Others were Dick Combs and Dan Sullivan, \$18 each; Frank Balaszi, \$15; Margaret Novak, \$11; and Chuck Odorfer and Tony Mata, \$10 apiece.

ELECTIONS HELD

Ben Beirne has been elected president of the Ventura Division Recreation Club-sponsored bowling league at the Conejo Bowl in Thousand Oaks.

Bob Ward is vice president and Jeannine Childers is secretary of the group which competes at 6:30 p.m. each Thursday.

GIL NUNN WINS PHOTO AWARD AT SANTA MONICA'S 'EXPO 70'

Northrop visitors to the Santa Monica Chamber of Commerce-sponsored "Photo Expo '70" in late August would have seen a blue ribbon hanging on a photo by Ventura Division Photographer Gil Nunn.

A full color multiple exposure photo of trombones by Mr. Nunn took first place in the illu-

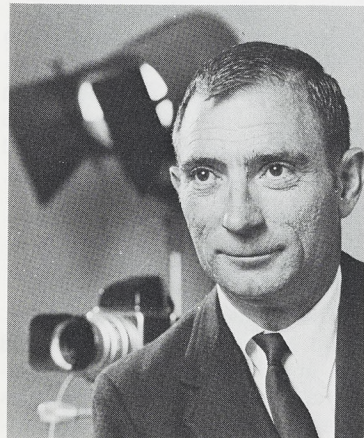
strative category of competition.

The seven-category competition attracted top photographers who submitted 400 pictures for possible display. Of the 10 Mr. Nunn offered, four were chosen—including the prize winner—for display in the Santa Monica mall.

Mr. Nunn made the photo with a 4x5 Graphic View camera. He also handled all the processing and printing. The montage-like photo has the trombones suspended against a black background.

Three years ago Mr. Nunn earned a second-place honor for his photo of a Northrop parachute. The picture was a runner-up in the industrial category for the Professional Photographers of California annual meeting.

Mr. Nunn is a graduate of the Brooks Institute of Photography in Santa Barbara. He has been making pictures at Northrop for the past six years.

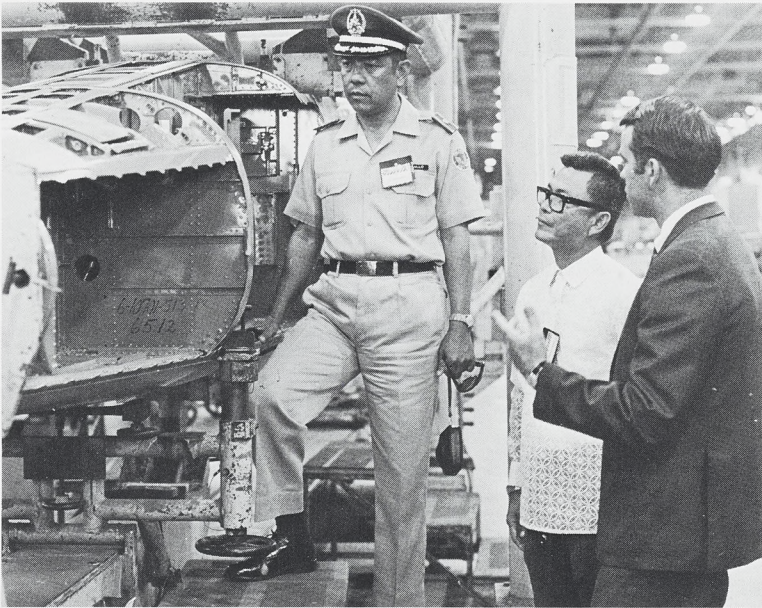


WINNER NUNN
By Robert Thornton.



JAN MCCLUNE FETED BY FRIENDS
With Credit Union officers Chuck Taylor, left, and Johnnie Via.

F-5 Production Line Visit



MAJOR FRANCISCO C. VASALLO, director of Information Services for the Philippine Air Force (PAF), left, and retired Philippine Air Force Colonel Tirso A. Baldemor, center, receive briefing on F-5 assembly line from Roger Fritch, Customer Relations office. Major Vasallo visited the Northrop plant for a firsthand look at how the F-5, which is the mainstay of his country's Air Force, is produced. Colonel Baldemor, who formerly headed the PAF Information office and now lives in Downey, was host to Major Vasallo during his stay in Los Angeles.

NORAIID Board, Officers To Serve for Another Year

The officers and members of the board of directors of NORAIID, Inc., Northrop's in-plant charitable organization, have been returned to office to serve for another year.

Re-election came at the annual meeting of NORAIID, Inc., the organization that aids Northrop employees in time of need.

L. Lloyd Balsam of the Electronics Division has taken office for his second term as chairman of the board of directors. Directors returned to office include Tom Earl, Cleve Fowler, Paul Jacobs, Frank Mathes, Dan O'Halloran, John K. States and Sal Xifo of the Aircraft Division, plus Douglas Leavenworth of the Electro - Mechanical Division. Frank Smith, Corporate offices, joins the board for A. C. Morgan who retired recently.

At The Helm

Officers of NORAIID returning to office for another year are Mr. O'Halloran, president; Mr. Fowler, vice president; Marie Tully, secretary; and Ernie Boren, treasurer. The NORAIID board also re-appointed Mrs. Tully as NORAIID administrator and Rudy Rivero, accountant. Josephine Roth was appointed NORAIID deputy administrator.

Key facilities committees for the 1970-71 year include:

Aircraft Division, Hawthorne, George Matuskey, chairman, Lucianna Clack, Ted Garvey, Bill Hayman, Jim Zimmerman, Josephine Roth, Bill Steen, J. H. Toms and Earl Bentley, committee members;

Electronics Division, Hawthorne-Palos Verdes, Harry Clark, chairman, Roland Gagon, Eloise Howell, Hollis Smith, and Don-

ald Weaver, committee members; Electro - Mechanical Division, Anaheim, Harry Belcher, chairman, William Carey, Carl Jensen and Sally Moore, committee members;

Electro - Mechanical, Huntsville, Charles White, chairman, Riley Ponder and Marlin Sloan, committee members;

Aircraft Division, Edwards AFB, Jack Farley, chairman, Frank Harrison and Frank Ramme, committee members; and

Aircraft Division, Palmdale, Guy Patt, chairman, Eutha Dame and W. W. White, committee members.

THIRTY YEAR MAN

His Northrop Career Has Been Sew-Sew

While Francis Glasser likes to describe himself as "one of the few surviving practitioners of a lost art," he is quick to defend his calling.

"It is the only Northrop job I know that allows you to take an idea and a few materials and turn out a finished product without ever consulting or calling on another department for help," he says.

Mr. Glasser is an aerospace leadman trimmer who works in Upholstery at the Aircraft Division. He has performed the same type of work in the same organization for more than 30 years. That is, until his retirement at the end of this month.

"I worked in Hollywood as a casket trimmer back in the late 1930's. Since I lived in the Baldwin Hills area, I was aware Northrop was breaking ground for a new plant in Hawthorne," Mr. Glasser says. "I dropped by and applied for a job because I wanted to get into war work. I reported to work in September 1940."

Mr. Glasser's expertise with fabric and needles was put to good use building more than 1,200 fabric-covered control surfaces for the old PBY seaplane series, a subcontract Northrop was filling for Consolidated Aircraft.

New Retirement Program Changes Broaden Long-Service Benefits

Reflecting concern for the long-time employee who is laid off because of current economic conditions, the Northrop board of directors has approved several changes in the retirement program which broaden retiree benefits.

The emphasis of the revised program is in benefits for the personnel with many years of Northrop service who are laid off shortly before achieving eligibility for early retirement.

An employee with 10 or more years of continuous service has vested rights and if terminated before age 55 will be entitled to retirement benefits at age 65. Early retirement at age 55 or older, however, means immediate benefits at a rate dependent upon age and years of service.

The Changes

Those basic conditions are broadened by the newly revised provisions:

1. An employee laid off after May 21, 1970 remains a participant in the retirement plan with corresponding rights for as long as he maintains his seniority.

For example, if such a person with vesting reaches age 55 while an inactive participant he may choose early retirement instead of having to wait until age 65 for his benefits.

2. In the event he is vested but is not eligible for early retirement when laid off and is rehired within five years and works at least five more years then all his service credits accumulated at time of layoff will be included with his current continuous service credits for future retirement benefits. (This applies only to people rehired before age 60.)

3. A new option allows long-service vested personnel laid off

after May 21, 1970 but under age 55, an opportunity to elect early retirement upon reaching age 55.

If an employee's age and years of company service (at time of lay-off) add up to 75 then the employee has the option to receive the reduced benefits of early retirement when he becomes 55.

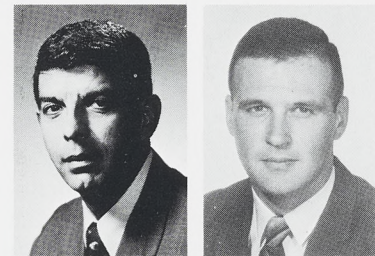
Otherwise he has only a vested right to full benefits at age 65.

Since all figures vary for each individual in the company it is recommended that interested affected personnel discuss the impact of these new provisions with the retirement counselor at their division.

Two USAF Officers Begin EWI Training at Northrop

Two USAF officers, Lt. Col. Gilbert A. Chabolla and Capt. George M. Daly, have begun a 43-week on-the-job management training program with Northrop Corporation.

They are participants in the Education With Industry (EWI) Program, a joint program conducted by the Air Force Institute of Technology with the support of leading governmental contractors across the nation.



Lt. Col. Chabolla

Capt. Daly

Col. Chabolla and Capt. Daly are concentrating their studies in areas that will prepare them for future assignments as USAF production / procurement officers. Their Northrop schedule has been arranged to help them develop an understanding of the complete cycle involved in system concepts, design, development, tests and manufacture.

In the weeks ahead the officers

will rotate through the various departments of the Aircraft Division where they will actually work on management level problems.

In addition, they will spend time with elements of the Air Force Plant Representative Office at Northrop as well as the Corporate office and the Electronics, Electro-Mechanical and Ventura Divisions.

Their schedule will also allow them to participate in tours and meeting with other EWI trainees.

Col. Chabolla, a 17-year USAF veteran, has just returned from Vietnam and Thailand duty assignments, including 175 combat missions with a tactical electronic warfare squadron. A qualified navigator/bombardier, Col. Chabolla has flown with the Strategic Air Command aboard B-47 bombers and KC-97 aerial tankers. In addition to his SAC duties, Col. Chabolla has served as director, Material Management Inspector of all Systems Command Centers and Ranges for the USAF Inspector General Office and as War Readiness Material manager and inventory manager for a Supply Division.

Capt. Daly's last duty assignment was at Albrook AFB, Panama, where he was responsible, as chief, Procurement Division and Contracting Officer, for ordering over \$3 million in supplies and services annually for Albrook and Howard AFB as well as procurement support for USAF units deployed in Central and South America. Previously, he served as contract negotiator and contracting officer for the USAF Air Proving Ground Center, Eglin AFB, Fla., and as staff procurement officer, Headquarters USAF Southern Command.

Northrop Corporation has actively supported the USAF Education With Industry Program for the past 15 years, affording training opportunities for 43 USAF officers.

DISNEYLAND

Northrop ticket outlets continue to offer special all-in-one tickets for an Oct. 23 "Family Night at Disneyland" event.

Sponsored by the Association of the U.S. Army, the event offers tickets for \$4.25 each which are good for entrance to the Magic Kingdom, plus unlimited use of all facilities between 8 p.m. and 1 a.m.

APPOINTMENT

The Hallicrafters Co., a Northrop subsidiary, has announced the appointment of W. J. DeZonia as eastern regional sales manager, Land-Mobile Department, Communications Equipment Division.

FASHION FLIGHT TAKING OFF SOON

"Flight Into Fashion," a Delta Air Lines fashion show, will be staged for the Airborne Chapter, National Secretaries Association, Intl., Oct. 8 at the Proud Bird Restaurant.

Joyce Carver of the Aircraft Division says "everyone is welcome." The price is \$7.50.



FRANCIS GLASSER, LEFT, AND RADOME COVER
He helped make 741 of these for the F-89 Scorpion interceptor.



PAM ANDERSON, above, trims excess material from duct as Helen Palenko, below, marks another part before it goes into oven.



PAT SILVAS, LEFT, AND MARGARET MEYERS
They're laying up material for a T-38 duct in Ventura Plastics Shop.



DAVE BERKSHIRE
Giving conduits final touch-up.



PHOTOS BY
ROBERT THORNTON

AT VENTURA

They Produce Plastic Parts for F-5, T-38



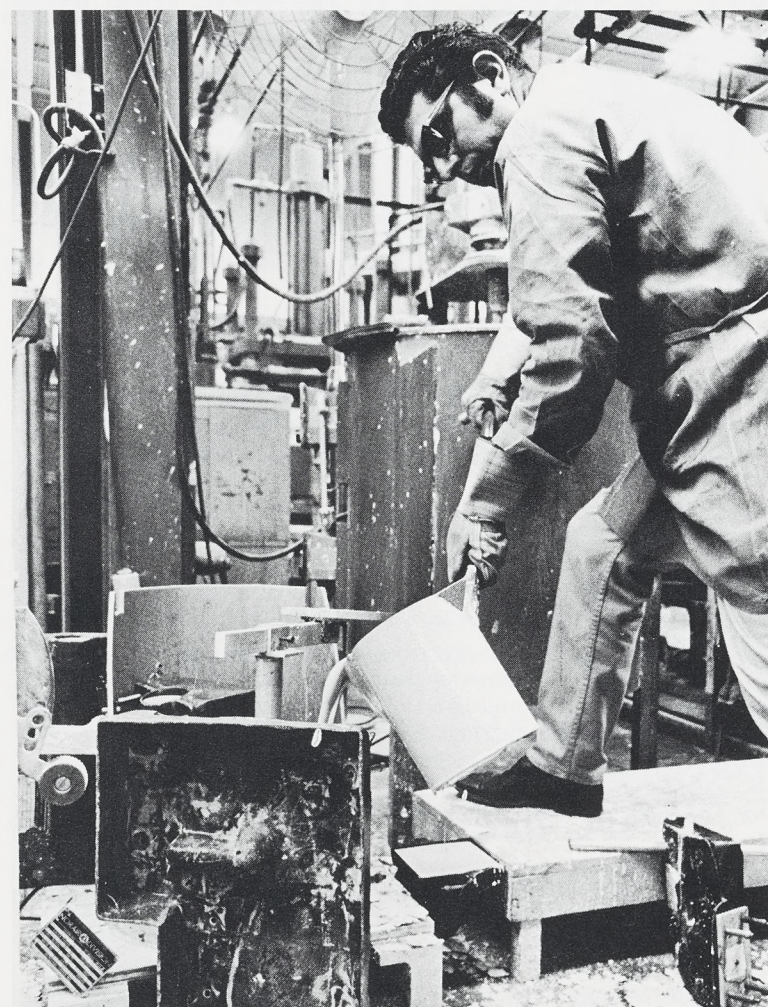
SUE AMISON
Skilled hands work material.



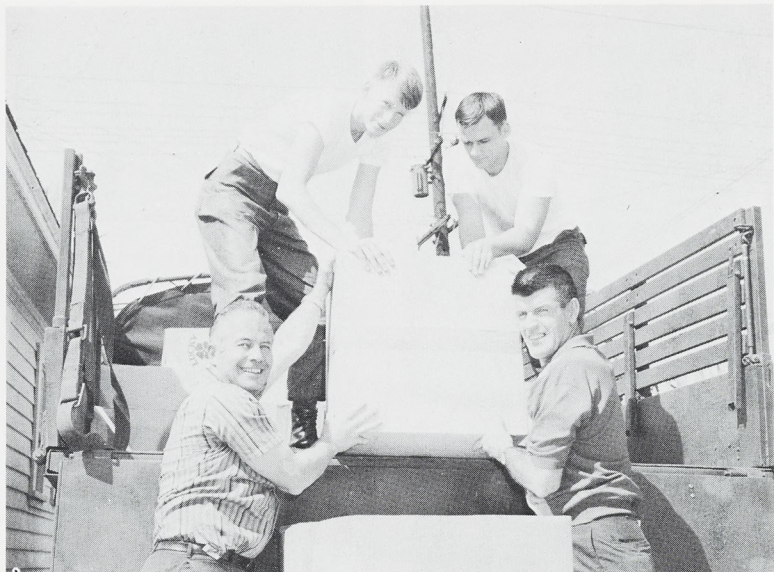
LINDA BENNETT
Laying up a tank duct.



ED ZURAWSKI WITH DORSAL FIN TIP
Device blows hot air onto plastic at final assembly lay-up.



JOHN BECERRA POURS PARAPLAST
Plaster is used for water soluble molds in fabricating parts.

**READY TO MOVE**

Woody Sherwood, left, and Lowell Bolger, right, help regular Marines load books onto truck from storage area in Inglewood.

U.S. Marines Come to the Rescue of Woody Sherwood

The United States Marines came to the rescue of Woody Sherwood last week.

Mr. Sherwood had 36 tons of books collected for natives of the Solomon Islands and no way to get them across the Pacific. Then the Marines, hearing of his plight, sent trucks to pick up the 76,000 pounds of books.

"It was a good feeling seeing those Marine Corps trucks pull up," Mr. Sherwood said. "You can always depend upon the Corps when you need help."

The books were collected by Mr. Sherwood, Quality Control, Electronics Division, and a friend, Lowell Bolger, both of whom served with the First Marine Division in the Solomon Islands during World War II.

"Our old outfit, the Marine Raiders, was a part of the division during the war," Mr. Sherwood said. "If it wasn't for the Solomon Islands natives, I might not be alive today. They showed us how to survive in the jungle, gave us food, and fought along-

side of us in every encounter we had with the Japanese."

He added that the natives were responsible for saving the lives of thousands of downed American pilots and shipwrecked sailors, including the late John F. Kennedy when his patrol boat, PT-109, was sunk in battle.

"Collecting the books was like paying back an old war debt," Mr. Sherwood said. "I don't think we will ever be able to give the island natives enough for their help, but at least the books are a first step. And I'm mighty proud that the first step has been taken by the U.S. Marine Corps."

GILLIAM SIGNED

Comedian Stu Gilliam will head an all-star entertainment cast for the Northrop Management Club's big dinner-dance set for Oct. 10 in the International Ballroom at the Beverly Hilton Hotel.

Social hour begins at 7 p.m., dinner at 8:30 p.m. Manny Harman and his orchestra will play for dancing beginning at 9 p.m.

IN 'BOATKEEPING'

There Are Advantages And Disadvantages

Housekeeping in a house is a cinch compared to housekeeping on a boat—but not nearly as much fun, according to Dee Melatti, Personnel Records clerk, who makes her home with her husband, Jim, aboard a 27-foot cabin cruiser.

Living is cramped into a 15-foot-by-8-foot cabin, but they overflow into the boat's cockpit and their car which is parked on the dock nearby. Also they have a van in a nearby storage yard where they store some of their possessions.

"Living on a boat has many advantages over a house," Mrs. Melatti said. "For one thing we don't have to water the lawn. It's always wet anyway. On the other hand, in a house I didn't have to change the bed into a table each time we eat."

"Bathing, of course, is simpler. You can just jump overboard—provided you didn't forget the bar of salt water soap."

It Takes Planning

Cooking provides a problem. There is only room for a two-burner stove. "So I have to carefully figure out when to start each dish so everything will come off the stove just right."

The time it takes to cook on a two-burner stove, plus having to pump water into the sink and then heat it to wash dishes, plus having to make the bed and convert it into a table to eat on requires about two hours work from start to finish to prepare breakfast, she reports.

Since the cabin is so small, and closets are almost non-existent, the trunk of their car serves for additional storage space. They also have rigged up a cover for the boat's cockpit and use that as a laundry room. Clothes are hung on the ship's lines to dry.

In bad weather, the boat rocks a little. "But that isn't anything to worry about," Mrs. Melatti said. "Just think of it as a cradle

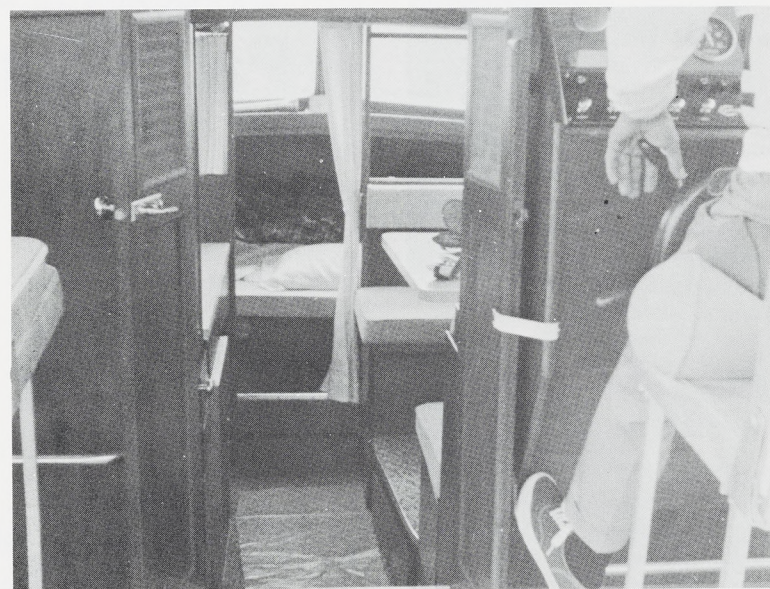
rocking you to sleep."

Mrs. Melatti says the major requirements for housekeeping on a boat—besides having a boat—are a love for the water and the open air. "You get plenty of both," she said. "Also one of the

most delightful parts is thinking of the wonderful trips you could be taking in the boat if you weren't so busy trying to house-keep in the thing that you never have time for a trip. Anyway, we love it!"

**'BOATKEEPERS' JERRY AND DEE MELATTI**

Sunning on the bow, above, and small space for everything below.



WE ASKED THEM — In What Event in History Would You Have Liked to Participate?

**Joy Brown, Receiving Test inspector, Electronics:**

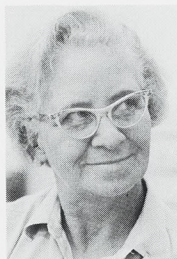
The first flight of the Kitty Hawk. That would have been a real thrill because the airplane has had such a large impact on our society today.

**Audrey Grillo, secretary, Electronics:**

The Revolutionary War and the establishment of the United States as a separate country. Those times had such a deep involvement of people for one goal, which is kind of lacking in the world today.

Frances Rush, 747 structures assembler, Ventura:

The American Revolution. Why? Because I think it was the beginning of the greatest country and government that ever existed.

**H. J. Luehr, Die Maintenance, Electro-Mechanical:**

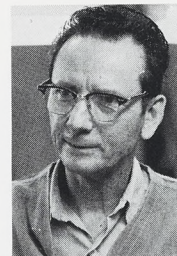
I have a great admiration for Julius Caesar. I would like to have been with him when he was conquering Europe and writing back to the Roman senate, "I came, I saw, I conquered."

**Luciana Clack, analyst, Aircraft:**

I would like to have been around in the covered wagon days on the Oregon and California trails. People today don't realize the courage, fortitude, stamina and faith in God that these people had.

**M. E. McHugh, manager, Aircraft:**

I would like to have been around in the pre-Civil War days and in a position to help avoid that unfortunate experience.

**Ray Borzage, trim and drill operator, Ventura:**

It's hard to pin down to one event. But I'd have to say the first successful flight of the Wright Brothers at Kitty Hawk. That opened the door to today's world of aviation.

**Helen Phillips, Financial Reports, Electro-Mechanical:**

I am perfectly satisfied with the present time. There is so much going on now. People of tomorrow will look back on today as a very eventful time.



NORTHROP MEN GET TOP POSTS IN SOCIETY

Northrop men have been selected to fill the two top elected offices in the Southern California Society of Electron Microscopy for 1970-71.

Richard F. Schneidmiller of the Materials Sciences department of Northrop Corporate Laboratories is the new SCEM president. Named vice president was Robert E. Herfert of the Aircraft Division's Materials Research department. The local society is now making plans to host the 1972 National Electron Microscope Society of America meeting in Los Angeles.

SME MEMBERS TOUR NORTHROP

Sixty-one members of the San Diego Chapter, Society of Manufacturing Engineers (SME), toured Aircraft Division Boeing 747 production facilities this month.

The visitors were guests of Northrop employees who are members of the Santa Monica Chapter, SME.

**IS IT NEWS?
CALL EXT. 4273
HAWTHORNE**

Classified

Classified ad service is provided free of charge to all Northrop personnel. Ads for agencies, commercial enterprises and private businesses are not accepted. The Northrop News reserves the right to edit or omit ads. Obtain ad form C67 from organization clerk and mail ad to Northrop News, 170, zone 62. Ads are limited to one item and one ad per person each issue. Deadline is noon Wednesday, one week before publication.

Automobiles For Sale

- Cadillac**, 1962, 4-dr., all power, a/c, \$300. 213-846-0219. A
- Saab**, 1968 2-dr., new eng., \$850. 714-526-5358. A
- Dodge**, 1946 2-dr., new paint & Fluid-Drive, \$200. 213-378-0054. A
- Toyota**, 1969 Corona sedan, auto., radio, \$1,495. 213-421-0900. A
- Chevrolet**, 1967 Malibu, 36,000 mi., p/s, 283 V-8, 2-dr., \$1,800. 213-372-7320. A
- Ford**, 1960 Starliner, 2-dr. h/top, 390 V-8, Cruise-o-matic, radio, full power, a/c, \$175. 213-677-2677. A
- Chevrolet**, 1960 El Camino, 4 VS Indy Mag tires, 283 eng., 15,000 on o/hauled eng., \$1,200. 714-827-7218. A
- Maserati**, 1962 3500 GTI coupe, fuel injection, \$3,850. 714-842-2896. A
- Ford**, 1958 Fairlane 500, 4-dr. h/top, p/b, p/s, r/h, \$100. 213-679-3889. A
- Corvette**, 1963 fastback, p/s, p/b, 327 eng., auto. trans., AM radio, \$1,495. 805-642-4142.
- Camaro**, 1968, 327 eng., auto. console, r/h, \$2,100. 213-644-8577. A
- MGB**, 1966, new tires, AM-FM radio, stereo tape, h/top & canvas top, 55,000 act. mi., \$1,200. 213-755-2717. A
- Oldsmobile**, 1966 Cutlass, \$345; T-Bird, 1964, \$445; Buick, 1964 Wildcat, \$395; Plymouth, 1964 Belvedere, \$225; Plymouth, 1966 Belvedere, \$395; min. bids for Cadillac, 1966 convt. de Ville, \$1,695; Continental, 1964, \$745; Barracuda, 1968, \$1,125; Grand Prix, 1968, \$1,895; Grand Prix, 1969, \$2,875; Credit Union ext. 1117. A
- Ford**, 1968 Galaxy 500, 4-dr. h/top, fully equipped, \$1,625. 213-375-8993. A
- Volkswagen**, 1970, stick shift, \$1,799. 213-376-3596. A
- Ford**, Fairlane 500, 2-dr. h/top, auto., p/b, p/s, \$800. 714-828-9243. A
- Karmann Ghia**, 1968, headers, new tires, \$1,395. 714-838-3740. A
- Buick**, 1963 Riviera, full power, air, \$950. 213-832-8647. A
- Cadillac**, 1963 4-dr., full power, \$650. 213-372-1632. A
- Volkswagen**, 1970 Squareback sedan, auto., radio, clock, hvy. duty baggage rack, \$2,750. 213-439-5111. A
- Chrysler**, 1969 Town & Country, air, tape, 9-pass., \$3,795. 213-378-8905. A
- Cadillac**, 1964 sedan de Ville, AM-FM radio, a/c, full power, \$1,250. 213-320-7482. A
- Station Wagon**, 1964 Datsun, 1200 cc, radio, \$550. 213-396-5837. A
- Pontiac**, 1969 Firebird, 350, all power, air, \$2,800. 213-325-4094. A
- Austin Healey**, 1960 3000 roadster, \$500. 714-892-1401. A
- MGB**, 1964, \$1,000. 213-425-7506. A

Household Items For Sale

- Range**, gas, Chambers, white, \$25. 213-675-9667. B
- Washer**, Kenmore, apt. size, \$100. 213-378-3017. B
- Chest**, white, 36" x 34", 6 lge. & 3 small drawers., \$25. 213-532-7381. B
- Dining Room Set**, maple, 4 captain's chairs & table, \$35. 213-644-8855. B
- Table**, maple, dropleaf, 4 chairs, \$20. 213-545-5045. B
- China**, Noritake Goldart pattern, 12-place setting & servers, \$175. 213-374-6791. B
- Bedroom Set**, 5-pc., solid maple, \$125. 213-327-6543. B
- Stove**, gas, Wedgewood, white, oven, broiler, storage space, \$35. 213-834-3796. B
- Mattress**, Englander, foam, box springs, \$20. 213-675-5695. B
- Coffee Table**, solid maple, \$25. 213-676-0666. B
- Dinette Set**, round, distressed maple, 4 captain's chairs, 2 leaves, \$95. 213-373-2317. B
- Washer**, Westinghouse & dryer, elec. \$75 or sell sep. 213-541-2710. B
- Stove**, O'Keefe & Merritt, \$35. 213-644-3922. B
- Bed**, king size, box springs, mattress w/ matching Mr. & Mrs. chest, light Italian wormwood finish, \$250. 213-888-8018. B
- Sofa**, chair, beige fabric, modern style by Kroehler, \$40. 213-327-2279. B
- Bedroom Suite**, Philippine mahogany, mattress, box springs, h/board, f/board, chest-of-drawers, dressing table w/lge. mirror & bench, \$65. 213-645-3986. B
- Sofa**, 6', cocoa brown upholstery, \$25. 213-834-0586. B

Miscellaneous For Sale

- Golf Clubs**, McGregor, 8 reg. irons, glass shaft mallet head putter, bag & 2 woods, \$35. 213-779-6842. C

Miscellaneous For Sale

- Air Cooler**, \$17. 213-675-6020. C
- Lot**, on Salmon River in Idaho, \$1,995. 213-862-3027. C
- Tape Recorder**, Craig 212, portable, unused, T control operation & auto. level control, 2-spd. capstan dr., spkr. & mic., \$20. 213-789-2594. C
- Guitar**, Martin D-21 Dreadnought, hard case, \$400. 213-630-4188. C
- Mobile Home**, 10'x55', set up in park in Elsinore, partly furn., \$4,250. 714-674-3395. 714-674-4591. C
- Mini Bike**, Bonanza, new 3 h.p. eng., 2 extra whls., \$80. 213-675-7915. C
- Motorcycle**, 1969 Yamaha DT-1, \$650. 213-645-6290. C
- TV**, Motorola, 23", color, maple cabinet, console, 4 yrs. old, \$135. 213-372-5702. C
- Bicycle**, girl's 24" Schwinn & surfboard, Jacobs, \$25 ea. or \$50 both. 213-377-4623. C
- TV**, RCA color, walnut console, 4 yrs. old, contemp. design, \$220. 714-838-7692. C
- Generator**, for Honda, 1500 watt, \$275. 213-675-9048. C
- Ice Skates**, Riedel, figure-type, boy's size 6, w/guard, \$17.50. 213-329-6848. C
- Exerciser**, Slim Gym, \$75. 213-676-7910. C
- Pups**, German shepherd, 6 wks. old, 3 females, 3 males, black & white, AKC, \$60. 213-644-6629. C
- Stroller**, \$10. 213-329-6728. C
- Ammunition**, .45 a.c.p. & .30 M1 carbine, \$4 for 50. 213-545-6719. C
- Dresses**, size 7-8, \$3-\$5. 213-835-3869. C
- Receiver**, Scott 182B, AM-FM mult., 65 w. stereo amp., \$150. 213-541-3022. C
- Phonograph**, Magnavox stereo, floor model, walnut cabinet, \$50. 213-323-2234. C
- Golf Clubs**, set, Mangrum glass shaft, bag, balls, \$50. 213-374-4016. C
- Wardrobe**, girl's, size 12 & junior high size 10, \$15. 213-675-7965. C
- Tires**, 4 14" positraction, \$95. 213-671-7875. C
- Gun**, Ruger 10/22 w/scope & extra clip, \$40. 213-324-0570. C
- Organ**, Thomas electronic, keyboard, bass pedals, earphones, ebony finish, \$150. 213-676-9560. C
- Aquarium**, 10-gal., \$7. 213-372-8714. C
- Camper Shell**, \$150. 213-675-0549. C
- Camera**, Kowa Se model, 35mm single lens reflecting, \$35. 213-785-1405. C
- Stereo**, 6' contemporary, EICO dual amplifier, AM-FM tuner, Lisa turntable, 2 10" & 4 3 1/2" & 2 2" Jensen spkrs., \$200. 714-639-3003. C
- Acreage**, 5 acres, Antelope Valley, near paved road, \$400 dn., \$6,000. 213-378-1026. C
- Outboard Motor**, 1 1/2 h.p., \$35. 213-671-1660. C
- Auto Radios**, 2, \$5 ea. 213-295-0778. C
- Motorcycle**, Honda, extras, \$250. 213-889-0793. C
- TV**, 21" console, G.E., b&w, \$40. 714-528-8582. C
- Typewriter** w/table, \$20. 213-823-6621. C
- House**, 3-bdrm., 1 3/4 bath, Holly Park, assume 6 1/2% G.I. loan, \$2,000 dn., principals only, \$205 mo. Box 1901. C
- Tape Recorder**, Raleigh, transistor, model TR-300, portable, \$20. 805-495-3649. C
- Gun**, Colt 45 Gold Cup, accurized, Bomar rib, \$175. 213-542-3459. C
- Movie Projector**, super auto., 8 mm, fully auto. threading, 25 mm f/12 Varizoom lens, \$75. 714-897-7917. C
- Travel Trailer**, late 1968 21 1/2' Aijo, self-contained, station wagon, 1968 Dodge Polara, completely equipped for towing, \$4,990 or \$2,495 ea. 213-324-1593. C
- Motorcycle**, Honda 50, \$95. 213-377-6193. C
- Airplane**, 1961 Cessna 210 A, fully equipped, \$11,500. 213-399-4168 or Credit Union ext. 1117. C
- Boat Trailer**, 16' Wallstrong, 6:00x13 tires, winch, \$200. 213-377-5853. C
- Airplane**, Taylorcraft, many extras, \$2,495. 213-644-4638. C
- TV**, console model 16" G.E., \$25. 213-645-1274. C
- Golf Clubs**, ladies' bag & bag boy cart, Spaulding Top Flite, 3-9, wedge, putter, 4 woods w/covers, \$125. 213-542-5664. C
- Tires**, 4 15" Delta High Flotation, 4,000 mi. wear, \$55. 213-860-2305. C
- Engine**, for VW, 1969 1500 cc model, w/out access., \$225. 213-396-6739. C
- Camper**, 1959 Vagabonde, 10' cabover model, oven & butane refrig., \$600. 213-370-2113. C
- Mobile Home**, 1966 Paramount, 20x55, 2-bdrm., 2 baths, cpts., bltins, set up in Gardena, \$7,000. 213-329-2571. C
- Shotgun**, Remington 12 ga. Field Master mod. 870, \$100. 213-675-2828. C
- Vacation Trailer**, 1968 17' Prowler, completely self-contained, sleeps 6, many extras, \$1,895. 714-774-9183. C
- Mini Bike**, 3 h.p. Briggs & Stratton, \$80. 714-532-1510. C
- Crib**, mattress, playpen, G.E. warming dish, bottle warmer, dressing travel tray, diaper pail, other misc. baby items, \$30 or sell sep. 213-833-0724. C
- Radio**, Craftsman, AM-FM w/AFC control, hi-fi amplifiers, 3-spd. record player w/storage, walnut cabinets, \$50. 213-675-2514. C
- Acreage**, 20 acres on Hwy. 18 in Apple Valley, low dn., 6.5 int., \$18,500 or 4 5-acre parcels, \$5,500 ea. 213-327-3616. C

A NEW EXPERIENCE

This Family Likes to Surf on Snow

If surfboarders Margie and Mike Behunin's way catches on, the cry "surf's up!" may change to "snow's up!"

The Behunins pass up the ocean and do their surfing on snow. This unusual use of a surfboard began, Mrs. Behunin said, when her brother broke the skeg (keel) off his board. Then she and her husband took it with them on a trip to the snows in the Big Bear Lake area last year.

"At first we tried riding it like a sled down the toboggan run at Big Bear," she recalled. "Then my husband began trying to ride it like a surfboard. It was such fun we kept it up."

It took them quite a while to learn to ride the board in the snow. "There is no way to guide it except to shift your body around which gives you a slight control," Mrs. Behunin said. "It is much harder and — I think — more fun than skiing."

Watch That Nose

Balance is extremely important in snow "surfing." The nose digs into the snow very easily and the result is a quick spill. "Fortunately," she said, "snow is soft."

As the season progressed, they got better. "By the time the snow ran out, Mike was able to keep his footing completely down the toboggan run and past the point where the sleds usually stopped."

Now the Behunins are waiting for more snow to continue their new sport.

"We are thinking of building a very small skeg on the bottom to help hold balance. Then we should be able to do a lot better. I've never seen anyone else

trying to "ride surf" on the snow, but I think we will see more and more people taking it up. It's

great fun and you don't get wet when you fall off like you do in the ocean," she added.



SURFBOARD BECOMES A TOBOGGAN

Margie and Kathleen Behunin take a wild ride down snowy slope.

EDITOR'S NOTEBOOK

On occasion, as we go about doing our own thing in a routine way, we tend to lose sight of what our actions may mean down the line. Many Northrop employees are involved in building components for the Boeing 747 superjet and recognize the impact this sky giant has had on world travel. Now comes a report from the U.S. Bureau of the Census that adds a little more meaning to our work.

The United States, the report says, in the month of June exported aerospace products valued at \$235,574,400. This brings the total aerospace products export for the first six months of 1970 to a total of \$1,836,918,700. About \$250 million of the latter figure represents deliveries of the Boeing 747 (12 of them) to Western European and Japanese airlines.

But the real significance of the total, the report points out, is its importance to the U.S. balance-of-trade position. In 1969 almost nine per cent—or \$3.15 billion—of total U.S. exports of \$37.3 billion were accounted for by the aerospace industry. Makes doing your own thing sound a little more important, doesn't it?

And we would like to add to the list of Northrop families selecting the Boeing 747 for their personal travel the name of W. F. Eggleston and his wife. Mr. Eggleston, of the Aircraft Division, reports they flew to and from Hawaii via 747 for a rendezvous with their son, who came there on a leave from duty in Vietnam.

* * *

Here is an add to our department of incidental information. California auto owners may now order personalized license plates and at the same time aid in the fight on pollution. You can get any combination up to six letters, as long as they do not conflict with regular plates or use offensive language. The fee is \$25 and the annual renewal fee is \$10. That's in addition to regular renewal fees.

Money collected for these plates will be used to fight pollution and support other programs designed to enhance and preserve the state's total environment. It represents the first program ever enacted for the specific purpose of combating pollution, according to news from the California Legislature. Applications for these plates are available through Department of Motor Vehicle offices.

* * *

Sometimes aerospace-oriented scientific work has to take a back seat to more time-honored science. The plight of Dr. Kenneth Lindh is a good example.

Scheduled to participate with other Ventura Division personnel in a recent AIAA paradyamics conference, Dr. Lindh had to beg off at the last minute because his wife was overdue in having their first child.

Co-worker Anthony McEwan delivered Dr. Lindh's paper in Ohio and on Sept. 16, the last day of the conference, Mrs. Lindh delivered little Erica Linnea Lindh. The infant weighed 9 lbs. 5 oz. and measured 20 3/4-inches long. Mother, daughter and doting father are all doing fine, thank you.

NORTHROP NEWS

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No. 19

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Mail Girl Is 'Champ' At Walking

Jean Harvey probably holds the day-to-day record at the Ventura Division for paper transactions and walking.

As the lone mail clerk at the division she processes an estimated 2,000 pieces of U. S. and Northrop intra- and inter-office mail and then walks six to eight miles per day making mail deliveries.

That breaks down to an average of some 1,000 pieces of incoming mail daily, 800 interoffice communications and 200 outgoing letters or U.S. mail parcels.

Her day begins when the U.S. mail comes in at 8:15 a.m. It must be sorted, opened in some cases, and then delivered in the familiar mail cart. She is processing and delivering Northrop mail continuously.

A Busy Girl

Mrs. Harvey is authorized to sign for registered and certified mail. In addition, she handles the postage meter for outgoing letters and parcels—up to an 80-pound parcel she once sent to Northrop's Washington, D. C. office.

With Northrop three years, she is described by her supervisor, Walt Mann, as a "very good and capable worker."

Mail comes in from all over the globe and Mrs. Harvey saves the foreign stamps and envelopes for a special "Stamps For Children" program which she read about in the Northrop News.

Helping Youngsters

"The youngsters like the envelopes, too, so they can imaginatively trace the travel of a letter across the world," she explained. She sends up to 200 such envelopes to the U. S. Air Force-sponsored program in Japan each month.

With all that walking and processing some would become bored. But not Mrs. Harvey. "I like not being tied down to a desk," she says. "And handling the different kinds of mail keeps things interesting."

After all, she sort of shares a motto with her federal peers at the Newbury Park Post Office. "Neither rain nor sleet nor snow..."



JEAN HARVEY SORTS THE DAY'S MAIL
Then she walks several miles delivering it often throughout Ventura Division.

Ventura's John Clark Looks Back On 25 Years of Northrop Service

Although he has just 3½ years of continuous seniority, the Ventura Division's John R. Clark has been on Northrop payrolls for 25 years.

And that quarter of a century mark doesn't include the period of time he spent working for John Northrop when one of the founders of the present company headed operations for the Douglas facility in El Segundo.

Mr. Clark's official starting date was 1942 when he went to work as an engineer on the Flying Wing under development in Hawthorne. Among his co-workers were three present day Venturans, Harry Parker, Bob Johnston and John Lawrence.

When the big Flying Wing made its maiden flight from Northrop Field (now Hawthorne Airport) to Muroc Dry Lake (now Edwards AFB) on June 25, 1946, it was a proud day for Mr. Clark and all other Northrop personnel.

Mr. Clark still has a July 10, 1946 copy of the Northrop News which detailed the maiden Flying Wing flight and highlighted it with two photos taking up the entire front page of that edition.

In the forties the Flying Wing

project was one of several important ones to Mr. Clark. He also worked on the ultimately famous P-61 Black Widow night fighter and an experimental version of the F-89 Scorpion.

Before the end of the decade he was a design engineer on the Snark missile and later a preliminary design engineer on a twin engine experimental fighter known as the Fang.



VETERAN MR. CLARK
With historic Northrop News.

His Vacation Takes Him Home To Scotland

Scotty Blackwood went home this summer in a 10-hour trip that brought back many memories. Scotty, a Ventura Division welder whose proper first name is Alexander, flew back to Scotland with his wife.

It was the second such month-long trip in three years, Mr. Blackwood told the Northrop News, and very rewarding.

The Blackwoods visited many sisters and brothers in their native land and spent most of the time in the Glasgow suburb of Bishopbriggs. Like any other tourists, sightseeing was also important.

"We saw lots of the countryside and such places as Loch Lomond and Loch Katran," he said.

And, like any good Scot, he brought back some kilts for his grandchildren.

Mr. Blackwood retains a Scottish accent although he has been a U.S. citizen for 30 years.

After 13½ Northrop years he went to work for Air Logistics, then rejoined Northrop 18 months later in 1958 at Ventura's predecessor, Radioplane. Almost eight years later, in December 1965, the lure of working on the SST pulled him away again.

"Lockheed and Boeing had been awarded design contracts and I went to work at Lockheed supervising the design of the empennage, aft fuselage, wing control surfaces, leading edges and landing gear doors," he recalls.

He compared the SST configuration to the old Flying Wing. "These two aircraft have many things in common," he says, "each one was excitingly new and a tremendous engineering challenge."

When Boeing won the resulting engineering competition Mr. Clark was offered a design job on the L-1011. Not satisfied, he returned to Ventura in March of 1967 to head the design team on the 747 wing-to-body fairings.

Now he is an engineer on the B-52 decoy proposal team. Are his wandering days over? "Probably," Mr. Clark concedes. At 53 he thinks he'll settle down at Northrop, his aerospace "home" for 25 of more than 33 years in the industry.

Geller Is Suggestion Chief Now

An industrial engineer for 15 years, Ken Geller is now the coordinator for the Suggestion Awards Program at the Ventura Division.

Mr. Geller was appointed by M. A. Maurer, vice president of Production Operations, when responsibility for the program was recently transferred from the Financial Management department.

He succeeds Warren Clymer as chief suggestion man at Ventura. Mr. Clymer's duties keep him in the Financial Management department.

Mr. Geller, a Northrop employee for seven years also runs the Cost and Management Improvement Program in the Manufacturing area and does methods operations studies.

"The Suggestion Program, coming forth with ideas to save money while maintaining quality and awarding the suggester, is a good one," Mr. Geller said. He invites employees to participate.

Holiday Cards, Toys Available

Christmas will be on us before you know it, reminds Ventura Recreation Club Secretary Kathy Miller, and she recommends a head start on two Christmas necessities—greeting cards and toys.

The Rec Club office in Room E-112 now has a Heidi Toys catalog offering a 15 per cent discount through former Ventura employee Bill McGibbons.

Mr. McGibbons is now sales representative for the Inglewood toy manufacturer and is offering the discount as well as a 50 per cent layaway plan with the balance due Dec. 1. The toys are available for pre-school and elementary-age children.

Christmas cards available through Ventura Division artist Doug Finch can also be ordered at a 30 per cent discount from the Rec Club offices any day from 11 a.m. to 1 p.m.

"Now is the time to order," says the Rec Club secretary.

On The Job...



MARY McDANIEL has been working on the target drone assembly line at Ventura for almost 20 years. She is pictured drilling holes for the door hinge of the KD-2R5 aerial drone.

Honoring Bridge Player



VENTURA BRIDGE Club President Terry Chin presents trophy to Maybelle Trudell who, with her husband, won a recent duplicate championship tournament for club members at Mr. Chin's home.

NORTHROP NEWS

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October 14, 1970

Management Club to Host County Officials

A Nov. 4 dinner meeting of the Ventura Division Management Club at Los Robles Inn, Thousand Oaks, will be one of the major events of the year, according to John H. Wells, its president.

The Ventura County Board of Supervisors has accepted an invitation to attend the Management Club dinner.

After discussions with John Conlan, chairman, Ventura County Board of Supervisors, Mr. Wells extended the invitation to the supervisors at the board meeting

held on Sept. 29 in Ventura.

Supervisors Conlan (Thousand Oaks), Tom Laubacher (Oxnard), and Ralph Bennett (Ojai), have already accepted invitations.

Supervisor H. F. Robinson (Ventura) plans to attend, and Supervisor Joseph Appleton (Simi Valley), not present at the board meeting, is expected to respond soon.

Management Club members will have an opportunity to meet informally with their respective supervisors during the 5:30-6:30 p.m. social hour preceding dinner.

Gasich Host

Welko E. Gasich, Ventura Division general manager, will host the occasion, acknowledge the individual accomplishments of each supervisor, and extend a pledge of cooperation to the board on behalf of the Management Club.

Mr. Wells said that nominees for the 1971 slate of officers will be presented after dinner. Additional nominations will be accepted from the floor.

DIVIDEND NOTED BY CREDIT UNION

The board of directors of the Ventura Division Credit Union has approved a third quarter dividend of 5 per cent to all shareholders of Oct. 1.

Johnnie Via, Credit Union president, reminds Ventura personnel that the Credit Union is open daily and provides both borrowing and saving services to shareholders.

HANDY FIRE EXTINGUISHERS NOW AVAILABLE AT DISCOUNT

The Ventura Division Recreation Club, through the cooperation of Ventura's Security office, is making fire extinguishers available to personnel at wholesale prices.

In an observance of National Fire Prevention Week, Oct. 4-10, the small portable dry chemical extinguishers went on sale last week and will continue to be sold while the demand exists.

The extinguishers cost \$7 (plus sales tax). They may be used in car, trailer, camper, boat, kitchen or garage. They are especially good for electrical or flammable liquid fires.

"This is important," noted Charles Simmers, head of Ventura's Security office, "because using water on an electrical fire

could electrocute the person using a hose."

Using water on a flammable liquid fire, he explained, usually results in spreading the fire around as the power of the hose and water sends the flaming liquid flying.

Mr. Simmers recommends that the lightweight extinguisher be used in short bursts and at a distance that won't allow the high pressure discharge to spread the fire.

If the extinguisher is used it can be re-charged with an inexpensive kit containing the dry powder and pressurization equipment.

Delivery orders for the extinguishers can be placed in the Rec Club office, Room E-112, any weekday from 11 a.m. to 1 p.m.



GETTING COVETED QUARTER-CENTURY PIN

Welko Gasich honors, from left, Wes Steyer, Warren Sparks and Margaret Bourland as Mr. Bourland looks on.

SERVICE PIN RECIPIENTS

Four Mark 25 Years With Northrop

Eighteen Ventura personnel, including four with 25 years of Northrop service, have accumulated 285 collective years with the company to qualify for service pins this month.

Receiving pins from General Manager Welko E. Gasich for a quarter-century of service are Margaret Bourland, Wes Steyer and Warren Sparks. Lloyd Simpson, another 25-year man, is stationed in Hawaii.

The Bourland name is well-known at Ventura. Mrs. Bourland has been in the Weld Shop

Scorpion, Mr. Steyer transferred to Ventura in 1962 as assistant to the vice president, Technical. He was program manager for the Apollo Earth Landing System and is now manager of the Support Operations department.

Mr. Sparks has been active in the Production picture since he began his Northrop career Oct. 30, 1945, as an expeditor in Manufacturing Control at the Aircraft Division. He is one of those responsible for initiating the automated production control system and from 1960-62 was Northrop's representative at Boeing's Renton, Wash. facility.

He transferred to Ventura in August of 1968 as director of Production Control and retains those duties as manager of that area. His product interests span the era from the Flying Wing to the 747.

Mr. Simpson has moved around with Northrop. He began at the Aircraft Division Oct. 8, 1945 and transferred to Ventura in December of 1954 as an electronics engineer. He went back

to Hawthorne in 1965.

Eight months later Mr. Simpson came back to Ventura as a senior technical field associate and now is assigned to Ventura's Mark 30 operations as a field technical specialist in Hawaii.

The two 20-year men are Ray Escott and Bill Robinson. They both joined the company on the same day, Oct. 9, 1950.

Mr. Escott, now a production manager in Manufacturing, began as a general assembler on the drone line. Mr. Robinson, a procurement specialist, also worked in the Weld Shop at Radioplane from 1942 to 1947.

Eight For Fifteen

Eight Venturans receiving 15-year pins are Robert Bradford, Lou Florence, Tony Fortuna, Grady Means, Jim Rundgren, Beverly Tomminello, Bob Tracy and Edith Weber.

John Flores is the sole 10-year man in October.

Five-year pins go to Rosemary Hanggie, Tom Smalley and William Thomas.



Mr. Escott

Mr. Robinson

for 25 years. Her husband, Ray, former head of Manufacturing, retired after 26 Northrop years two years ago and a son, Ray Ben, has been on the Ventura Maintenance crew 14 years.

Mrs. Bourland's first boss, back in 1942, was the actor and co-founder of Ventura's predecessor company, Reginald Denny. Before the end of her first year she transferred to welding and has been there, except for a three-year lay-off period, ever since.

The Early Days

Mr. Steyer started his Northrop career in 1945 at the Aircraft Division in Hawthorne. He served in several engineering roles on aircraft at that division, including project engineer for the (subcontracted) Boeing KC-135, 707, 720 and two McDonnell fighters.

Also playing key roles on Northrop planes, including the F-89

NASA Names Roy Jackson To Head OART Activities

Roy P. Jackson, vice president and assistant general manager of the Aircraft Division, has been named associate administrator of NASA's Office of Advanced Research and Technology (OART). He assumes his new duties Nov. 2.

Prior to assuming his assignment with the Aircraft Division, in 1966, Mr. Jackson served for four years as vice president and assistant general manager of the Northrop Space Laboratories.

In his new assignment in Washington, D.C., Mr. Jackson will be in charge of the NASA

organization responsible for the aeronautical and space programs conducted at four NASA field installations—Ames Research Center, Langley Research Center, Lewis Research Center and the Flight Research Center.

In Washington, Dr. George M. Low, acting administrator of NASA said, "NASA is very fortunate to obtain the services of a man with such a long and varied experience in aeronautical and space research and development. He brings to NASA an enviable record of success as a manager."



HERE'S HOW IT WORKS

Chuck Simmers shows Dorothy Prychoda fire extinguisher technique.

CARL HOOD HONORED



CARL HOOD, right, Corporate director of Materiel, receives 30-year service pin from Northrop President Thomas V. Jones prior to his retirement Sept. 30. Mr. Hood, who was formerly manager of Materiel for the Aircraft Division, spent his entire Northrop career in the materiel field.

Firm Commitments Needed To Stem Rising Pollution

"Contrary to what most people hear and see over their radio and television sets, something is being done about water pollution."

That was the message brought back to Northrop by Dr. Don Pretzer, director of Technology Analysis for the Northrop Corporate Laboratories, from the Fifth International Conference and Exhibition on Water Pollution Research, held recently in San Francisco.

More than 1,200 scientists from all over the world were present to hear and talk about the various methods being used to combat water pollution.

Complex Problems

"Although scientists studying the problem receive little attention and publicity, they are working hard to solve the extremely complex water pollution and water management problems," Dr. Pretzer said. "They are attacking water pollution in lakes, streams and estuaries from a system point of view using sophisticated mathematical and experimental techniques. Considering the limited funds available in the past, these scientists have made significant progress. A case in point is the recent development of a mathematical model which tracks pollutant distribution versus tidal changes in Jamaica Bay on Long Island, New York."

Dr. Pretzer pointed out that future controls on water pollution will probably be accomplished

through the use of electronic monitoring systems at each industrial plant which discharges waste water into coastal or inland waterways.

"Individual polluters will be forced to control the amount of pollutants they pour into rivers and streams," he said. "The information gathered from these sensor systems could then be used by state and federal government to establish an over-all pollution control system."

WALTER BYERS GETS NEW DUTIES

Walter A. Byers, has returned to Northrop International headquarters to assume new duties as Corporate director, international projects, after having spent eight years in Europe as a marketing representative.



Mr. Byers

Before joining Northrop in 1960, Mr. Byers was an international marketing representative of Bendix Corporation.

He has been succeeded in Oslo by Lloyd D. Chapman.

Northrop Pacific, Inc. Produces One Millionth 747 Stringer Clip

Northrop Pacific, Inc., this month produced its one millionth stringer clip for use in producing fuselage components for the Boeing 747 superjet.

Stringer clips are relatively small machined parts manufactured from H-shaped extruded aluminum. They are utilized for attaching stringers, the longitudinal structural elements, to the frames of the fuselage. Each shipset of fuselage components Northrop produces for the Boeing 747 now requires 6,800 clips in approximately 500 configurations.

This latest 747 program milestone highlights the close coordination and successful cooperation attendant to the total 747 effort.

It represents contributions made by The Boeing Company, Northrop Pacific, a wholly owned Northrop subsidiary, and the Aircraft Division's Manufacturing Research and Development, 747 Program Engineering and 747 Operations.

Present stringer clip production routines represent drastic changes incorporated into the original 747 stringer clip manufacturing plan. For example, initial plans called for the 6,800 clips to be produced in 1,200 different configurations. This required an extensive family of tools, a high degree of tooling set-up time, and excessive maintenance.

Loyal Massey, manager of Northrop Pacific, turned to Manufacturing Research and Development under Barney Gaiennie and 747 Engineering under Warren Klauer for production and technical assistance in working out present production methods.

Mr. Klauer assigned Le-

roy Seefeld to the effort for the purpose of reducing the 1,200 stringer clip designs to the lowest possible number. During redesign, efforts were made to reduce the stringer clip weight as part of Northrop's continuing effort to reduce the over-all weight of its 747 components. Mr. Gaiennie provided Robert L. DeBar, senior Manufacturing Research engineer, to coordinate development of production techniques with Oscar Crague, Northrop Pacific factory manager, Joe Bethurum, production foreman, and C. E. Burget, tool engineer.

The new method developed calls for the production of stringer clips from a common (44-inch) length of extrusion. Three and four-spindle milling machines produce up to eight clips simultaneously by following a tracing template. A punch fixture, with fixed hole patterns, punches out

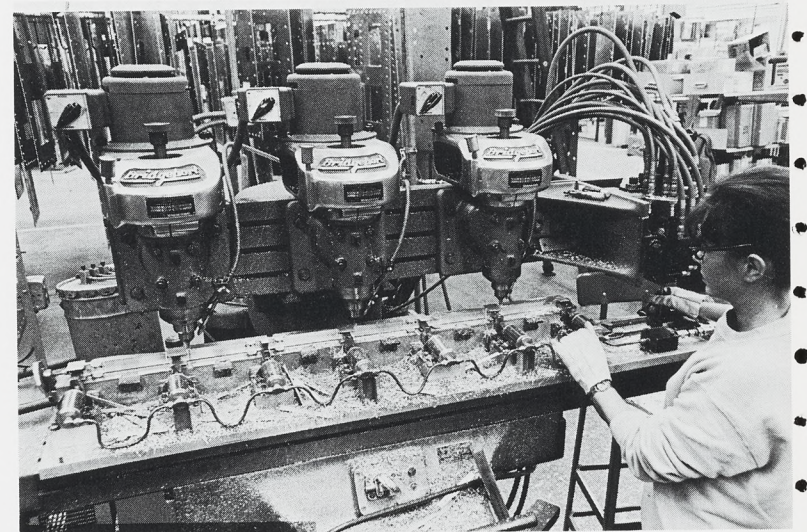
required holes in a single stroke.

A specially developed machine cuts the stringers to exact lengths, making two cuts automatically, each with a tolerance of plus or minus—.010 inches.

Two pieces of equipment, each with automatic indexing and checking devices permitting high production with precision accuracy in semi-automatic fashion, perform double compound scarfing on one end and notching on the other of the individual clips.

A fully-automatic deburring machine smooths away rough edges. Cleaning and alodining precede painting on a conveyORIZED spray paint line prior to drying in a special oven. Final inspection, numbering, packing and shipping follow.

This total production concept affords a means of turning out a high volume of small parts with a minimum amount of material handling.



PRODUCING STRINGER CLIPS FOR THE 747
Mary Ewan, above, operates milling machine turning out six stringers in a single operation.

SHIP FROM NOWHERE

Fellows Recalls Death of Shangri-La

October 26, 1970, recalls to the Electro-Mechanical Division's Charles Fellows the Oct. 26 twenty-eight years ago when the Shangri-La died.

Shangri-La, originally a mystic land in the novel "Lost Horizon," gained even greater fame when President Franklin D. Roosevelt, in announcing the Doolittle bombing of Tokyo in April 1942, facetiously said that the secret raid came from Shangri-La.

More than a year passed be-

fore security permitted the U.S. Navy to reveal that the president's "Shangri-La" was really the aircraft carrier "Hornet."

Mr. Fellows was a crewman aboard the "Hornet" through the first experiments to determine if a B-25 bomber—the type used by Doolittle—could take off from an aircraft carrier on through the Doolittle Raid and until the ship was sunk by two kamikaze suicide planes in the battle of Santa Cruz.

"No ship ever fought more bitterly to survive," he recalled on the anniversary of the sinking. "The Japanese knew by then that the Hornet was responsible for the bombing and concentrated on us."

Mr. Fellows joined the Hornet crew in 1941 as a fireman first class. One day in 1942 he was surprised to see an Air Force B-25 loaded aboard at Norfolk, Va. He was even more surprised when the plane began practicing take-offs from the flight deck.

Everyone had thought the twin-engine bomber too large for carrier duty. Then the Hornet steamed to California where more B-25's were loaded along with Air Force crews.

"We had no idea that history was being made," Mr. Fellows recalled. "We thought we were fer-

rying the planes to Hawaii. After we were at sea, we were told that we would steam to within 400 miles of Japan so the planes, under Lt. Col. Doolittle, could bomb Tokyo."

The carrier was spotted 800 miles from Tokyo by three fishing boats. The ship's destroyer escort sank the boats, but it was feared that the Japanese sailors may have radioed Tokyo that the American aircraft carrier was approaching. So the Doolittle raiders decided to take off early. There were 16 planes and 80 men involved in the flight."

Mr. Fellows was on duty at the time and could not get up on deck to see the planes take off. However, for the benefit of those unable to see the historic event, Marc Mitchener, the carrier's captain, personally broadcast a blow-by-blow description of what was happening until the last Doolittle plane disappeared into the sky.

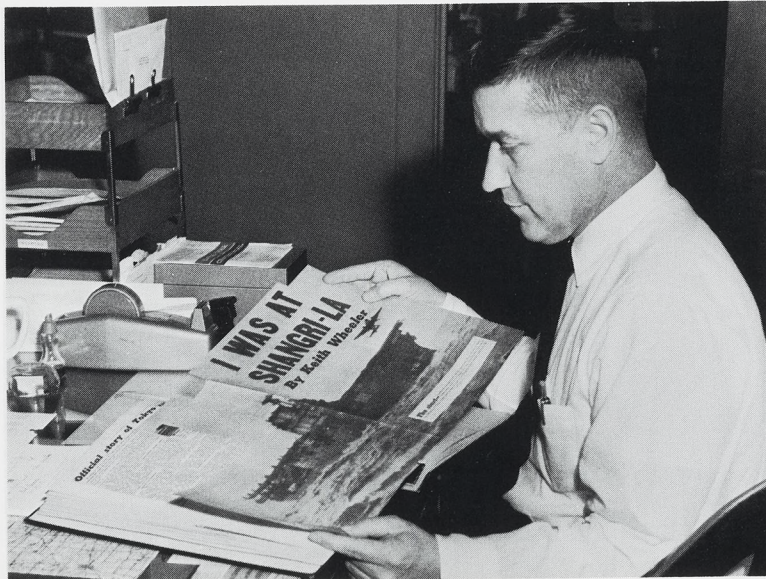
TIME TO CHANGE

Daylight Saving Time will end Sunday, Oct. 25, at 2 a.m. Employees should turn back their clocks one hour to be on time for shifts starting Monday, Oct. 26.

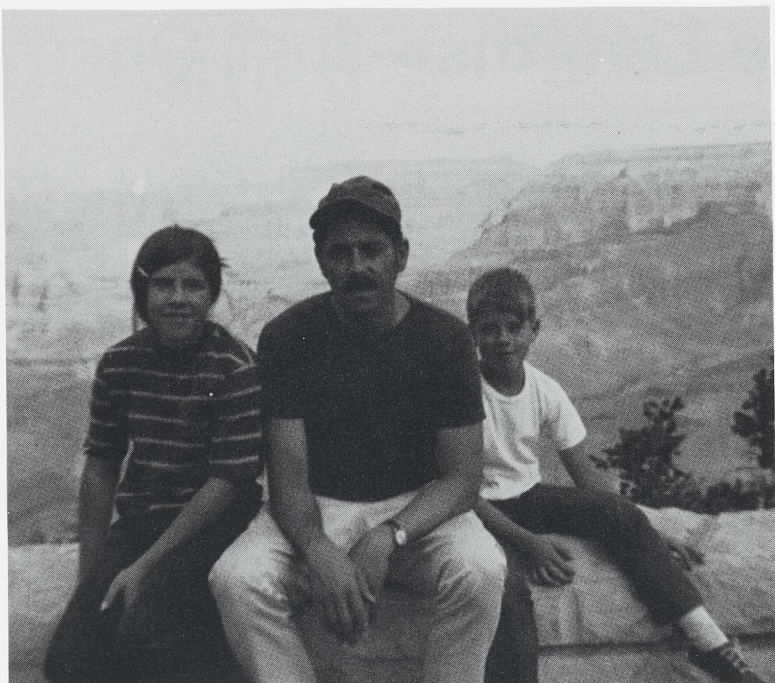
THOMAS V. JONES PICKED BY NICB

Northrop President Thomas V. Jones has been re-elected, for a two-year term, a board member of the National Industrial Conference Board (NICB).

NICB, founded in 1916, is an independent and nonprofit institution for business and industrial fact-finding through scientific research. Its sole purpose is to promote prosperity and security by assisting in the effective operation and sound development of voluntary productive enterprise. NICB now has more than 4,000 members.



READING PAGES FROM THE PAST
Charles Fellows was aboard when first air strikes of Japan began.



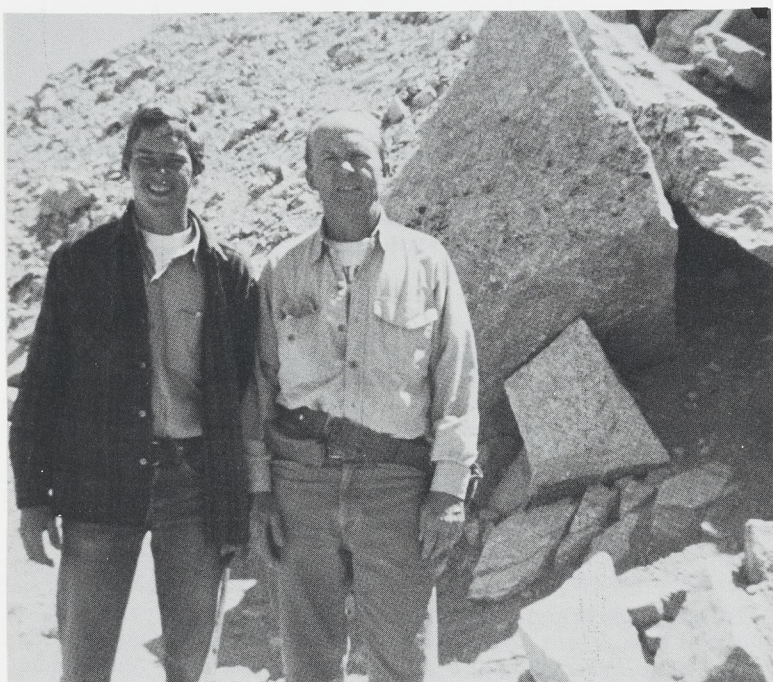
ELECTRONICS DIVISION's Brad Leonard with son, Derrick, and daughter Suzette, pause for a moment's rest on their vacation to the Grand Canyon. The Leonard's also visited Bryce Canyon National Park in Utah.



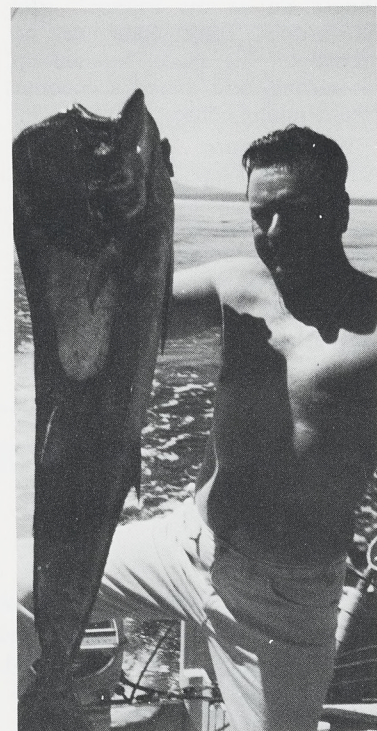
RUTH COHRS and husband Roy, Electro-Mechanical Division, took the glass bottom boat ride at Catalina Island to view the under-sea gardens and wonders of the ocean.



ESTHER JONES, industrial nurse, and Jack Kinzer, plant maintenance, Electro-Mechanical Division, were among a Northrop group that visited the Leaning Tower of Pisa in Italy.



ELMER HARRIS, right, and his son, Charles, 15, of the Aircraft Division, scaled 14,496-foot Mount Whitney as a vacation trip. Their 26-mile hike required three days, including two nights spent on the trail.



JIM ANTHONY, Aircraft Division, shows off 50-pound dolphin caught off Rancho Buena Vista, Baja California. Mr. Anthony piloted a twin-engine Cessna to and from an eight-day vacation in Mexico with his wife, Fern, and two sisters.



TOLEDO, SPAIN, was a popular picture choice for at least three of 30 people on a 22-day Rec Club-sponsored tour of Spain, Portugal and Morocco. Above, Mr. and Mrs. Cal Peterson of Ventura enjoy Toledo skyline while below, Ellen McCreary, an Electronics Division secretary, was snapped moments later.



RAY GAGE, right, stands on the steps of the Nymphenburg Castle in Munich, Germany, as he and Mrs. Gage joined another couple in touring 11 European countries. He is a Venturan.



These Northrop Girls Go to Extreme Lengths—Just Once

"There's Strength In Numbers" or "Wearing A Midi To Work Is Okay If Others Do" could well be the title for this story of how eight women in the Contracts group at the Ventura Division displayed the newest in skirt length styles in the face of severe adversity.

It all started as a gag when Secretary Maria McFarland thought it would be interesting to see the response. Not anxious to go it alone, she soon convinced seven others—Mary Clerico, Cecile Cockrell, Dorothy Coffman, Jeanne Cummings, Jean Grow, Peggy Walthuis and Macey Zarit—to join her.

And the response, when all

added Mrs. Zarit. "They make your legs look like stumps."

Steve Downey, Mrs. Zarit's boss, smilingly described the costume parade as "an obvious defiance of the male preference." He likes shorter skirts, he says.

"Tomorrow has to be a better day," said Hank Widmer as he ruefully awaited the next day's return to standard skirt lengths.

A Preference

Noted Ralph Friesen, "Personally I don't care for it. They've gone back many years." He, too, professed interest in shorter skirts.

"I really don't know what to think," stated Enos Jeffs. Taken aback with the sudden profusion of midis that morning, he said a halfway point between the midi and the mini seems more practical.

When word got around Ventura that the Contracts girls were showing off the latest styles visitors were attracted to the area.

Ed Burd summed up the reaction when he said, "There's only one answer to the midi—forget it!"



Mr. Downey



Mr. Widmer

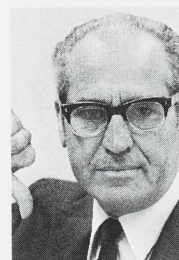
eight showed up to work one day in skirts well below their knees, was unanimous: "Yech!"

All the girls took the ribbing graciously. Mrs. McFarland was kidded about looking like a grandmother. "I am a grandmother," she laughed.

"Personally, they're awkward and not very comfortable," she added. "I don't like it but I went along with the gag," said Mrs. Coffman.

Miss Clerico, who looked like something from a 60-year-old issue of Life Magazine, was asked, "Where's your tambourine?" One man said she looked like an old-fashioned school marm. "It's not very comfortable and hard to walk," Miss Clerico conceded.

"The only reason I wore it was because I knew I wouldn't be alone," said Mrs. Cockrell. "I think they're horrible—uncomfortable, ungainly and unsightly,"



Mr. Friesen



Mr. Burd

DISNEYLAND

Monday, Oct. 19, is the final day to take advantage of a special invitation to an Oct. 23 "Family Night at Disneyland" sponsored by the Association of the U.S. Army.

Personnel Activities outlets are offering tickets at \$4.25 each. They cover admission to the park and unlimited use of the facilities there from 8 p.m. to 1 a.m.



'CLABBER GIRL' CHORUS LINE AT VENTURA?

Enos Jeffs measures midis, from left, Mary Clerico, Cecile Cockrell, Jean Grow, Jeanne Cummings, Macey Zarit, Dorothy Coffman, Peggy Walthuis and Maria McFarland.

'WHEN IN FIJI'

He Excels in Coconut Tree Climbing

"If when in Rome one must do as the Romans do, then it follows that when in Fiji one should do as the Fijians," said Northrop's Tony Baur as he kicked off his shoes, hitched up his sarong, and joined a coconut tree climbing contest.

What's more, pitted against Australians, New Zealanders and a Fijian, he upheld American sporting honor by coming in second in what must surely be the most unusual athletic activity participated in by a Northrop employee lately.

Mr. Baur, Aircraft Divi-

sion project engineer for the F-5/T-38, was in Fiji as part of a "Down Under" vacation tour he made in September with his wife Cindy. The excuse for the Fijian interlude was "we had never been there before."

The couple flew into Nadi, Fiji, and then took a boat cruise from Latoka that went 100 miles up the Isawa Island chain. They stopped each night at a different beach. There their Fijian skipper and crew prepared sumptuous feasts of meats, fish, exotic fruits and vegetables in the native manner by baking the entire meal

with coconut hull coals in sand pits.

"It was completely away from civilization," Mr. Baur said. "It was just like you'd always dreamed of a South Pacific Island; coral reefs, palm fringed white sand beaches, grass huts and tropical climate. However, there was one modern touch we didn't mind. The people are no longer cannibals. We found them very happy and extremely friendly. They are completely satisfied with their way of life."

The coconut tree climbing contest came one evening after a "kaua" drinking ceremony at a native village. Their Fijian skipper came in first with Mr. Baur beating out the other tourists for second.

"I don't think it will replace bridge or TV as an evening pastime," he reports, "but in Fiji it seemed the thing to do."

YEAREND TOUR HAS OPENINGS

Personnel Activities offices throughout Northrop facilities in the Southland are accepting reservations for the annual all-Northrop group tour to the Hawaiian Islands over the long year-end holiday.

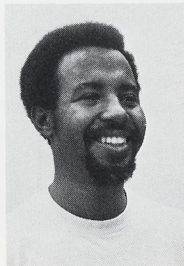
The 11-day, four island tour departs Los Angeles Dec. 24 and returns Jan. 3. Tour rates are \$396 twin, \$456 single and \$386 triple, according to housing required.

HOLE-IN-ONE

Bob Darnell of the Aircraft Division Transportation organization fired an ace on the 170-yard eighth hole of the Mission Viejo course Sept. 20 while competing in an NRC-sponsored monthly tournament.

Mr. Darnell, a one-handicapper, shot his hole-in-one on the par three hole enroute to a net round of 73 strokes. He was playing in a foursome that included Mac McLarney, Art Marta and Bryan Quick.

WE ASKED THEM—Would You Rather Be Called a Liberal or Conservative?



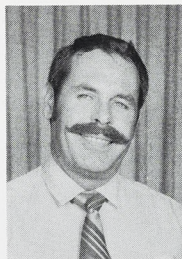
Willie J. Nelson, structural mechanic, Aircraft:

I'd rather be called a liberal. I think the liberals are trying to make things better for everyone.



Mary Foster, structural assembler, Aircraft:

Don't put me down as either one. Just call me an independent.



Jim Guyer, project controller, Electronics:

Liberal. I believe that a person should be an individual and should not force others to conform to his own moral or political code.

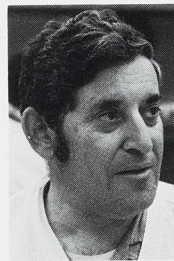
Cris Cook, control clerk, Electronics:

Liberal. However, I believe that everyone should be able to make their own decisions about everything they do, as long as it doesn't infringe upon someone else's rights.



Gladys Thompson, inventory control analyst, Ventura:

Since I never discuss politics or religion, I'd have to say that personally I'm a conservative because I believe in doing things in moderation.



Paul Friedman, plastics repairman, Ventura:

Right in the middle. I'm a moderate. I don't believe in extremism to the right or the left, either ultra-liberal or ultra-conservative.



George H. Varner, project dispatcher, Electro-Mechanical:

Both liberal and conservatives have their good points. So I would class myself as neither, but sort of in between.



Lana Johnson, secretary, Electro-Mechanical:

Liberal or conservative? Put me in both camps and call me a liberal conservative.



Classified

Classified ad service is provided free of charge to all Northrop personnel. Ads for agencies, commercial enterprises and private businesses are not accepted. The Northrop News reserves the right to edit or omit ads. Obtain ad form C67 from organization clerk and mail ad to Northrop News, 170, zone 62. Ads are limited to one item and one ad per person each issue. Deadline is noon Wednesday, one week before publication.

Automobiles For Sale

Station Wagon, 1961 Chevrolet Parkwood, r/h, p/s, auto., \$500. 213-645-1075. A

Pontiac, 1967 GT0, 400 cu. in. V-8, Hurst 3-spd. on floor, 37,000 mi., \$1,350. 213-370-2987. A

Plymouth, 1967 GTX, 440 cu. in., 375 h.p., r/h, \$1,900. 213-371-3667. A

Austin Healey, 1967 sport roadster, deluxe 3000, \$2,250. 714-828-2857. A

Volkswagen, 1965 bus, fully panelled, insulated, \$1,275. 213-396-6739. A

Buick, 1967 Skylark, new car warranty still in effect, \$1,850. 213-327-2929. A

Ford, 1963 500 XL, a/c, p/b, p/s, \$375. 213-279-2474. A

Ford, 1965 Fairlane 500, 2-dr. h/top, auto. trans., p/b, p/s, \$850. 714-828-9243. A

Toronado, 1970, full power, 5,000 miles, AM-FM stereo, a/c, \$5,500. 213-329-2842. A

Chevrolet, 1964, 2-dr. Super Sport, \$600. 213-673-4678. A

Chevy II, 1968 Nova, a/c, auto., p/s, p/b, 8-track stereo, \$1,525. 213-862-3027. A

Pontiac, 1965 convt., new motor, 4-spd. shift, 8-cyl., \$850. 213-675-9048. A

Volkswagen, 1966, \$850. 714-842-2896. A

Mustang, 1969 Cobra Jet, 428 ram air, pwr. d/brake, p/s, AM-FM stereo, \$3,150. 213-532-2867. A

Pickup, 1964 GMC ¾-ton, new clutch, brakes & tires, E-Z lift hitch, 5-spd. stick shift, motorcycle rack, \$1,450. Box 2001. A

Pickup, 1970 F250 Ford w/cab-hi camper, hvy. duty equipment, \$3,700. 213-835-0717. A

Station Wagon, 1966 Ford Country Squire, 9-pass., auto. trans., p/b, 390 eng., other extras, \$1,525. 213-377-3487. A

Porsche, 1970 T model, \$6,600. 213-379-7022. A

Falcon, 1961 Futura, \$225. 213-329-7998. A

T-Bird, 1964, \$445; Plymouth, 1964 Belvedere, \$225; Plymouth, 1966 Belvedere, \$395; min. bids for Cadillac, 1966 convt. de Ville, \$1,695; Barracuda, 1968, \$1,125; Satellite, 1964, \$425. Credit Union ext. 1117. A

Chevrolet, 1968 SS427, a/c, 21,000 mi., \$2,150. 213-324-2892. A

Austin Healey, 1960 3000, \$500. 714-892-1401. A

Corvair, 1965 Corsa, convt., turbo-charged 180 h.p., 4-spd., \$444. 213-322-5676. A

Chevrolet, 1963 Impala, 327 cu. in., less than 70,000 mi., p/s, p/b, a/c, new batt., \$500. 213-375-1756. A

Buick, 1963 Electra convt., full power, new tires & brakes, \$350. 213-275-7341. A

Volkswagen, 1966, 20,000 mi. on o/haul, \$875. 213-592-5039. A

Pontiac, 1965 Bonneville, 4-dr. sedan, all power, a/c, many extras, \$850. 213-676-5425. A

Truck, 1957 Chevrolet, 283 V-8, 4-spd., \$300. 213-372-1386. A

Mercury, 1966 Parklane, 4-dr. h/top, custom landau top, full power, many extras, \$1,400. 213-675-3209. A

Station Wagon, 1960 Chevrolet, \$265. 213-675-4486. A

Household Items For Sale

Bar Stools, 2, \$80. 714-778-2634. B

Stove, gas, apt. size, \$30. 213-320-3379. B

Goblets, crystal, set of 8, \$10, other items. 213-474-5726. B

Carpeting, red, 8x10, \$20. 213-343-7880. B

Refrigerator, Philco, apt. size, white, \$40. 213-676-9330. B

Coffee Table, glass top, \$25. 213-532-7381. B

Chair, w/footstool, olive green, \$25. 213-834-3796. B

Bed, maple, mattress & springs w/headboard, \$60. 213-671-1660. B

Tables, coffee, end & lamp type, limed oak, \$25 or \$10 ea. 213-644-3922. B

Bed, dbl., mattress, box springs, frame w/casters, \$15. 213-377-1075. B

Washer, Whirlpool Imperial, \$25. 213-377-3806. B

Bed, full size, Sear's best Posturpedic, 8-drwr. dresser, \$100. 213-644-7647. B

Bedroom Set, maple, 4-poster bed, Beauty Rest mattress, box springs, dresser, mirror, night stand & lamp, \$275. 213-423-1363. B

Refrigerator, \$40. 213-370-8119. B

Miscellaneous For Sale

Ski Carrier, for Triumph TR-2 or TR-3, \$10. 213-672-5649. C

Camper, 1959 Vagabond 10' cabover model, butane refrig., oven, \$600. 213-370-2112. C

Motorcycle, 1970 Honda SL100, under warranty, \$400. 213-676-5141. C

Lot, Wofford Heights residential area, Lake Isabella, near lakeside, paved rds., \$8,000. 714-828-2354. C

Miscellaneous For Sale

Mini Bike, Honda, 50 cc, \$150. 213-532-7175. C

Tape Deck, Teac, 4-track stereo/mono record & playback, auto. reverse, 4 heads, 3 motors, walnut case, \$350. 714-528-7680. C

House, Thousand Oaks, 3-bdrm., 1½ bath, cpts., dps., fenced, landscaped, cul-de-sac, FHA, \$23,500. 805-495-3913. C

Wig, brown, w/painted head & stand, \$25. 213-325-5245. C

Motorcycle, BSA 440, incl. equip. & manual for street or dirt, \$490. 714-539-5812. C

Alto Saxophone, Greisch-Commander, \$60. 213-377-8508. C

Deer Skins, 2 large tanned buckskins, \$8.50 ea. 213-670-2564. C

Accordion, Balearica, 120 bass, \$250. 805-483-5644. C

TV, 19" b&w Packard Bell portable, w/stand, \$37.50. 213-374-6791. C

Mini Bike, 9 mos. old, Briggs & Stratton 3 h.p. eng., \$75. 714-962-4134. C

Piano, Bradbury upright, concert grand, recently refinished & tuned, \$235. 213-696-7529. C

Pups, German shepherd, females, \$35; males, \$45. 213-677-6727. C

Gun, 12 gauge, Model 12 Winchester, \$90. 213-378-5698. C

Seats, folding-type, from Land Rover, mount on vertical or horizontal surfaces, \$15. Box 2002. C

Tires, 4, positraction, \$95. 213-671-7875. C

Doll Wardrobes, complete sets of over 20 costumes per set, to fit Barbi-size, access. incl., \$20 ea. set, 213-532-7853. C

Chord Organ, Estay el., \$75. 213-675-6020. C

Bicycle, Schwinn Sting Ray, \$30. 213-675-7915. C

Step Ladder, mahogany, for cabin cruiser, \$15. Box 2003. C

Motorcycle, 1969 Suzuki 350, 6-spd., \$550. 213-374-2127. C

Tent Trailer, 1968 Puma T8 h/top, dble. dinette, bltin stove, sink, ice box, water tank, canopy, spare whl., \$1,200. 714-521-7837. C

Trail Cycle, Hodaka Ace 100, 9 mos. old, 1,600 mi., \$300. 805-495-3763. C

Boat, 16' Glasspar Avalon, 75 h.p. Evinrude, big wheel tilt trailer, \$1,195. 213-371-2948. C

Motorcycle, Yamaha 250, \$650. 213-645-6290. C

Skis, Head 360, \$60. 213-372-4691. C

Motorcycle, 1967 Bonneville, 650 cc, chrome, \$850. 213-328-7887. C

Linkage, gear shift for TR-3 or TR-4, \$10. 213-295-0778. C

Motorcycle, 1969 Honda 90, 1,500 mi., \$200. 213-644-6475. C

Ski Boots, Kastinger, size 8½, \$15. 714-842-6087. C

Bicycle, Sting Ray, sissy bar, small sprocket, \$17. 213-397-3504. C

Organ, Conn spinet, dble. keyboard, \$450. 213-549-1350. C

Motorcycle, 1968 Yamaha, 250 cc, twin, \$375. 213-326-7170. C

Stroller & high chair, \$15. 213-377-7156. C

Acreage, 3 5-acre parcels, zoned trailer pk., on Hwy. 18 in Apple Valley, deed or contract, low int., low dn., \$14,500 ea. parcel. 213-327-3616. C

Canary, yellow, singing, metal cage & floor stand, \$10. 213-372-1632. C

Trailer, 3-rail for motorcycle, 1000-lb. rating, \$110. 213-833-7306. C

House, 5-bdrm., 3 baths, family rm., many extras, near El Segundo & Van Ness, G.I. or conventional, \$34,500. 213-321-2047. C

Golf Clubs, Spalding Top Flite, men's woods 1, 3, 4, 5, 1970 model w/new lightweight steel shafts, \$45. 213-328-3020. C

Mini Bike, Hodaka, 5-spd. trans., 9.8 h.p., \$165. 213-378-1353. C

Stereo, Grundig, w/AM-FM-SW phono & 4-track tape recorder, very little use, \$300. 213-371-3777. C

Motorcycle, 1966 Honda, 305 cc w/350 cc kit on a Honda 160 cc frame, \$200. 213-320-2659. C

Motorcycle, 1966 Honda, 90 cc trail bike, \$125. 213-835-7012. C

Motorcycle, 1966 Sachs, 50 cc, 4-spd. Bata-vus, \$100. 213-644-4534. C

Camper Shell, aluminum, fits any standard, long, wide box, \$95. 213-699-8173. C

Wanted to Buy

Freezer, small. 213-830-5284. D

Flute, for beginning student, 213-645-1489. D

Lathe, w/3 jaw chuck, about 6" swing, in good condition, accessories will be considered. 213-675-9068. D

Butane Tank, std. size, for travel trailer, must be in good condition. 213-676-9518. D

Cement Mixer, portable. 213-676-2414. D

Free (To Be Given Away)

Dog, med. size, male, to good home only, 1 yr. old. 213-832-0606. F

Pups, light brown to grey black. 213-371-8043. F

Rentals Offered

House, 2-bdrm., large fenced yd., carport, covered patio, unfurn., water paid, 3 miles from Aircraft Div., \$140 mo. 213-754-2663. G

Apt, 2-bdrm., unfurn., upper, cpts., dps., bltins, gar., newly decorated, adults only, no pets, \$140 mo. 213-676-4819. G

NRC Travelers Astride The Equator



NORTHROP FAMILIES are shown in a relaxing mood during the NRC-sponsored tour of Africa recently. In Uganda they pose on the equator. Next NRC Travel Club tour is to Hawaii over the yearend holiday. Contact Personnel Activities for information.

Rides and Riders

Rides Wanted

8 a.m. — 4:42 p.m.

Bellflower & Atherton, Long Beach. Hazel Salmon, Aircraft exts., 1579, 2081, 213-597-2844.

Imperial Blvd. & Lakewood Blvd., Downey. Morris Brown, Aircraft ext. 5121, 213-861-8508.

Rides Offered

8 a.m. — 4:42 p.m.

Imperial Blvd. & Lakewood Blvd., Downey. Morris Brown, Aircraft ext. 5121, 213-861-8508.

Rentals Offered

Cabin, Moonridge, Big Bear Lake, 3-bdrm., 2 baths, f/place, completely furn., family only, \$125 wk., \$50 w/end. 213-326-7232. G

Cottage, Ocean Bch., San Diego, near Mission Bay Park, \$30 w/end, \$60 wk. 714-826-2007. G

House, 3-bdrm., den, f/place, large rec. rm., Holly Glenn area, Hawthorne, avail. Oct. 25, \$275 mo. 213-596-1089. G

Vacation Cabins, 1- & 2-bdrm., stream, patio, f/place, \$30-\$35 w/end, \$70-\$90 wk. 213-868-8040. G

Rentals Wanted

House, 2-bdrm., w/fenced yard, gar., must accept 1 child & small dog, Downey, Bellflower or surrounding area, now paying \$120 mo. 213-861-5126. H

Child Care

Child Care offered, my home, 5 min. from Northrop, fenced yd., play equip., breakfast & lunch. 213-644-5395. I

Babysitting offered, in my home, all hrs., all ages, fenced yard, hot meals. 213-679-3991. I

Personals

I wish to express my deepest gratitude to the many friends at Northrop for their condolences regarding the recent passing of my beloved husband, Paul. BETTY M. SMELTZER.

To each of you, & all of you, especially to say many thanks for all you did in such a thoughtful way for the wonderful retirement party. CARL & THELMA HOOD. L

We wish to express our sincere thanks & appreciation for the sympathy & kindness shown us by our Northrop friends at the loss of our husband & father, Buck Nichols. PAT & CATHY NICHOLS & SHARI SAAVEDRA.

Please accept my most grateful thanks to NRC for the plant & to my many Northrop friends for the cards, calls & best wishes for a speedy recovery, particularly the ASD group. DICK BROWN. L

I am deeply grateful to my many friends at Northrop for their sincere & thoughtful expressions of sympathy at the recent passing of my husband, Ed Walton. MRS. DOROTHY WALTON. L

For Sale or Trade

Rim, 16" 8-lug, split, w/tire, \$20 or trade for 16.5x9.75 8-lug rim. 213-324-0570. M

Motorcycle, 1966 Honda SL, 305 cc, custom, \$350 or trade for car. 213-320-0324. M

IS IT NEWS?
CALL EXT. 4273
HAWTHORNE

EDITOR'S NOTEBOOK

Among the many interesting things happening to and aboard Boeing 747 superjets recently was a birthday party. That's right, a very special birthday party. And the honoree, five-year-old Barbara Herzog of New York, had a special story. It seems that she was born aboard a Lufthansa Boeing 707 over Newfoundland during what started out as a routine Frankfurt, Germany, to New York flight five years ago. The pilot on that flight was Captain Alwin Meyer, now Boeing 747 fleet chief for Lufthansa German Airlines.

Five years later, on her birthday, Barbara arrived early at New York's John F. Kennedy International Airport. She donned a pair of Lufthansa coveralls and helped wave in and dock a Lufthansa Boeing 747 piloted by Captain Meyer. After the passengers departed, Barbara, her parents and sister went aboard for cake, ice cream and coffee in the first-class cabin of the 747, a feast presided over by Capt. Meyer. Said the captain when it was all over: "It's the only way to come to any birthday party. With your own 747."

* * *

Many Northrop employees followed the tragic hijacking of and subsequent destruction of a Pan Am 747 in Cairo recently. Because the big superjet was such a total wreck, identification of the exact aircraft was difficult for those who are interested in such things. Bob Patchin of the Aircraft Division spotted the registration number (N752) and did a bit of research on the subject.

The aircraft in question moved through Northrop 747 Operations as ship number 34. Final fuselage components for it were shipped by Northrop in July 1969. The finished 747 rolled off the Boeing 747 line Dec. 16 and was delivered to Pan Am May 2, 1970.

In a letter to William M. Allen, chairman of the board of The Boeing Company, the pilot of the hijacked 747, Pan Am Captain Jack Priddy, wrote: "I know that all of you at Boeing felt badly at seeing so many years of love and work go up in flame at Cairo. Please tell your employees that not only the crew, but the passengers as well, cried a bit at the loss of N752. She was a good ship and served us well. I have had the pleasure of flying Boeing aircraft since the B314 and all of you should be proud to have produced the Boeing 747."

* * *

Our department of incidental information this week involves a reminder that it's time to think of mailing Christmas gifts to service personnel overseas. Mail from the United States overseas going via surface methods should be dispatched between Oct. 12 and Nov. 7. That designated SAM (space available mail) should go between Oct. 19 and Nov. 21. Parcel Air Lift mail may go between Oct. 26 and Nov. 28. And the regular air mail may be sent between Nov. 30 and Dec. 12.

NORTHROP NEWS

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No. 20

Published biweekly by Corporate Public Relations and Advertising for the employees of Northrop Corporation.

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Editor—Electronics Division Tony Cantafio
Editor—Electro-Mechanical Division Ivy Edmonds
Editor—Ventura Division Peter Toll
Editor—Business Affairs Rosemary Hussey

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She Reigns As Tiny Tot Princess

The daughter of a Ventura Division man has been named Tiny Tots Princess for 1970 at the Los Angeles County Fair in Pomona.

Five-year-old Kimberly Moore, daughter of Ventura's Marvin Moore, won the award Sept. 29 in competition with 42 other youngsters who had won a combined total of seven Southern California contests.

Blonde, blue-eyed and dimpled Miss Moore topped 191 contestants in the Conejo Valley Days pageant during June in Thousand Oaks, where the Moores make their home.

Judging of the 2-6-year olds is based on personal appearance and photogenic qualities. Winners — king and queen, duke and duchess, and prince and princess — each received trophies and a wristwatch.

Any theatrical aspirations for Kimberly, a kindergartener at Conejo School, are being shelved for the time being, Mrs. Moore told the Northrop News.

Mr. Moore has been employed in the Plastics Fabrication branch at Ventura for the past six years.



Kimberly Moore

WE'VE MOVED

Ventura Division offices for the Northrop News are now located in the Administration Building.

Formerly situated in the Engineering facility, the Northrop News mail address is 170/A-1. The office, Room 143, is located next to the cashier near the cafeteria.

Ventura edition Editor Peter Toll urges Venturans with story tips to contact him at ext. 1425 or by mail at the listed address.

**IS IT NEWS?
CALL EXT. 1425
VENTURA**



FIRST CHECK OF NEW WATER SUPPLY
Five fire hoses send water shooting 150 feet down canyon in water pressure test.

Standby Water System Checked Out, Adds Protection Against Major Fires

An emergency standby water supply is now fully operable in case of a major fire or catastrophe at the Ventura Division.

Division officials and rate inspectors from the two fire insurance underwriting firms which serve the Ventura Division recently conducted a test on the standby system which utilizes water in the new acoustic test facility near Fort Conejo.

Pumped by a six-cylinder Cummings diesel engine, the system sent 1,750 gallons per minute rushing 150 feet out of five specially mounted fire hoses.

Back-up Supply

The total water supply, some 270,000 gallons in the swimming pool-like structure, would last from 3-4 hours in the event of a major fire emergency, according to John Steman of the Plant Protection office.

tection office.

"The normal supply at the street fire hydrants is adequate for our standard needs," explained Mr. Steman. "This standby supply is only for emergencies."

A financial advantage has been realized with the new system in a resulting reduction in division fire insurance rates, Mr. Steman adds.

GOLFERS AT ESCONDIDO

Jack Carruthers Wins Two-Day Meet

Jack Carruthers had a two-day score of 135 as the Ventura Division Golf Club made its annual weekend trek to the Circle R Ranch in Escondido for golf and relaxation.

Mr. Carruthers took first place in the A Flight as Chuck Brune's 143 was second and Ron Aitkin, who hit the longest drives of the

weekend, shot a 148 for third.

Al Hahn edged Sam Westfall, 140.8 to 141.5 for the B Flight crown as Steve Garrity fired a 146 for third. Jack Haley won the C Flight with a 142 followed by Wayne Merritt, 153.2, and Mike Antonucci, 153.8.

Sue Wiscaver and Lois Sheridan were the two lady contenders

with Mrs. Wiscaver winning, 148 to 152.

Closest-to-the-pin honors went to Bill Carruthers, Mr. Brune and Mr. Garrity on Saturday with Mr. Brune repeating on Sunday. The other Sunday winner was Jack Carruthers.

Thirty-one golfers were scheduled to participate but one was unable to attend and two more were called back home because of the weekend fires.

The Ventura golfers will try their sticks on the Saticoy Public Links course on Oct. 31. Reservations may be made by contacting Bill Quick at ext. 626.

HERE'S YOUR OPPORTUNITY TO GET THOSE APOLLO PICTURES

How well will your children remember the Apollo 11 moon landing 10 years from now? How about your grandchildren?

To assure that the significance of man's first steps on the moon won't be obscured in a dusty history book the Ventura Recreation Club is offering color slides of this historic event.

The 20 slides include close ups of Astronaut Neil Armstrong, his first steps on the moon and pictures of the earth and the moon made from the command and lunar modules.

Total cost is just \$2 a set. A similar set for the Apollo 12 mission is also available at the same price.

For just 25 cents the Rec Club is offering a 45 rpm record of especially meaningful words by President John F. Kennedy, news-

man Walter Kronkite and the unforgettable words of Astronaut Armstrong as the first man on the moon.

Rec Club offices in Room E-112 are open each day from 11 a.m. to 1 p.m.

Earl Muehlenbach Leads Shooters in First Quail Walk

Earl Muehlenbach had the most accurate shotgun in the Ventura Division Rod and Gun Club's first Quail Walk Sept. 27.

Although 30 had registered to participate, only 13 showed up because of the major brush fires.

Mr. Muehlenbach knocked down 21 out of 25 clay pigeons as he walked a facsimile of a country lane. Harry Caseldine and Victor Koik scored 18 each.

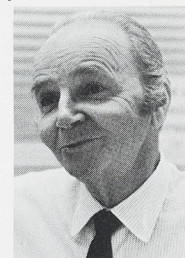
In class competition, Chuck Mottet won the "expert" category with 17 hits, Cliff Prodder had 11 scores to win the "limited experience" class and Dick Small was the best novice with nine out of 25.

Another quail walk may be scheduled.

Duke Powell To Retire Next Week

Travel and creative thought will occupy the energies of Dupre (Duke) Powell when he ends a 19-year Northrop career with retirement Oct. 23.

Mr. Powell, now assigned to the Reproduction unit where he operates virtually all machines, began his career at Radioplane in the Receiving department. He then saw duty in Expediting and Engineering before moving to his present assignment in 1966.



Mr. Powell

"We will all remember Duke as an energetic member of the Northrop team," says his boss, Doug Sessions. "He has been a real contributor."

The Name Game

A second generation American, Mr. Powell was born in Mineral Wells, Tex. and grew up in Dallas. He came west as a young man and earned the nickname "Duke" from screen actor Peter Lorre while serving as a valet to film stars at the Beverly Wilshire Hotel in Los Angeles.

His plans call for travel to the homeland of his forebears, Ireland and Wales, as well as some possible business opportunities in the advertising and promotion fields.

Mr. Powell lives with his wife of 36 years, Gwen, in Thousand Oaks.

CAMERA CLUB HEARS MARTIN

D. E. (Curly) Martin, head of Ventura's Arts and Graphics branch, was the featured speaker at the meeting of the Thousand Oaks Camera Club. Northrop hosted the evening meeting at the cafeteria.

Mr. Martin showed the popular Arts and Graphics multi-screen slide presentation and then led a discussion in non-technical photographic skills.

The Rec Club-sponsored Ventura Camera Club meets jointly with the Thousand Oaks Club.

On The Job...



DOROTHY CLOUSE, an 18-year Northrop employee, has been working on the 747 line at Ventura for the past year and a half. Here she is marking nut plates on seal retainers for the wing fairings. Her husband, Bill, recently retired after 22 years in the Ventura Model Shop.

NORTHROP NEWS

VENTURA DIVISION EDITION

Published biweekly by Northrop Corporation, Los Angeles, California

Vol. 28, No. 21

October 28, 1970

A MESSAGE TO THE PEOPLE OF NORTHROP

Americans are guaranteed their basic rights and freedoms through one of our most cherished possessions—the right to vote for the political candidate of their choice.

November 3 will again give us this opportunity to exercise this privilege. I urge each of you to be heard by going to the polls this coming Tuesday.

November 3 is the day when every registered voter can contribute to the progress of his city, state and country by recording his response to the oratory of the campaigns. Marking the ballot responsibly and knowledgeably is the cornerstone of our government and tradition.

Northrop encourages political participation by all its people and I again urge you to go to the polls to vote for your favorite candidates.

Plans have been made to assure Northrop personnel who are registered to vote necessary time off, if needed, to exercise their franchise. Full details of the Election Day procedures are explained on page 2.

Thomas V. Jones
President



FIRST BOEING 747B OFF THE ASSEMBLY LINE
Just out of painting operation, new superjet stood ready for engine installation.

Can You See The Strand?



SPECIAL MAGNIFYING glasses are needed to see the fine boron fiber used in a Ventura Division research program on Advanced Composites. A picture story of the development work in what has been called "the next generation of aircraft structural materials" is on page 6.

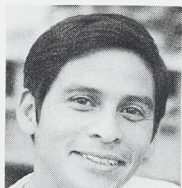
FRED BERUMEN'S IDEA USES TECHNOLOGY, PAYS REWARD

Once again the idea of using a machine instead of a man has made another operation more efficient and earned a good-sized suggestion award at the Ventura Division.

Fred Berumen, who works in the 747 Tool Preparation and Paint Shop, saw that hand application of a sealer for metal spray was inadequate because it dried too quickly.

Instead, he suggested using a spray application which does the job more uniformly and prevents rework time. Mr. Berumen's idea earned him a \$116 check.

Bill Merrick's money-earning



Mr. Berumen

idea was also related to a painting operation. But this one came in the MQM-74A target drone paint shop.

The problem arose when the MQM's JATO fairings were getting painted when they shouldn't have been. So he figured out a way to protect the fairings and, as a result of his initiative, earned a \$106 award.

Darwin Otto, of 747 Assembly, earned a \$50 award for a suggestion and Paul Friedman, of the Resin and Repair Shop, picked up \$42 for an idea. D.R. Mills and Frank Balaszi earned \$38 and \$35 for their suggestions.

Others receiving cash awards were Walt Kniffen, \$17, Roy Fox, \$11 and Francis Baker, Lee Bradley and Ken Anderson, \$10 each.

First 747B in Maiden Flight

The recent first flight of the Boeing 747B aircraft marks another milestone for Northrop personnel in their participation in building the jumbo jet. (See full test flight details on page 2.)

The 350-to-370-passenger aircraft rolled off the Boeing 747 assembly line at Everett, Wash. in

late August. From there it went directly into test flight conditions.

Production of the craft was a month ahead of schedule, according to W.W. Buckley, Boeing director of operations. The time-saving could allow Boeing "to delete a second airplane that was originally scheduled for the test

fleet," Mr. Buckley told the Northrop News.

Mr. Buckley attributed the schedule success to a careful pre-planning effort and said that without a major effort by 747 suppliers such as Northrop Corporation it would not have been possible.

MAKING GOLD JEWELRY

Dick Cronin Has A 14-Carat Avocation

What does a 23-year Northrop engineer do with his spare time? Dick Cronin has the answer. He makes rings and brooches of gold.

Mr. Cronin, project engineer in the Target Systems Project office at the Ventura Division, has been using the centuries-old investment casting process for the past three years.

He has produced about 100 items and has branched into mounting pearls on the jewelry. His latest task is learning how to mount diamonds in rings and pins.

It all started when a former co-worker was showing off some of his self-made wares. Mr. Cronin expressed an interest and the man sent him down to the Oro Casting Co. in Los Angeles.

At Oro (which is Spanish for gold) Mr. Cronin met the owner and struck up a friendship. Now

he spends many evenings and weekends making jewelry at Oro.

He is even licensed with a gold smelting firm to purchase gold

from the smelter. The gold, kept in Oro's safe, comes in large grains.

While he has learned the basics of the trade and now makes his own molds, Mr. Cronin says the most time-consuming task is cleaning, polishing and finishing the 14 carat pieces.

He is able to truly custom make jewelry for friends and relatives and some of his customers include Ventura personnel.

"I have to sell the stuff just to get a return on my materials," he explained. Gold costs from \$37 to \$45 for a troy ounce, depending upon the market.

His prices are reasonable and, though he doesn't advertise, he has many patient customers. "Sometimes they have to wait three months," he says with a laugh. "It's just a hobby with me. If I were in a hurry it wouldn't be any fun."

Northrop, NR in Transfer Talks

North American Rockwell (NR) and Northrop Corporation announced that they have initiated discussions concerning the possible transfer of NR's Columbus Division operations to Northrop. North American Rockwell had announced earlier this year that it was looking into the possibility of another contractor assuming responsibility for the operation of the Columbus plant, which is owned by the Navy.

The Columbus plant currently employs approximately 5,000 people and has responsibility for various military programs.

SWEDE SANDELL'S RETIREMENT TO CAP NORTHROP CAREER SPANNING 28 YEARS

Harold J. (Swede) Sandell puts the lid on a Northrop career that began in 1942 at the Aircraft Division when he retires this week from the Environmental Lab.

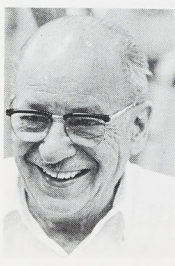
Mr. Sandell worked from 1942 to 1947 on the B-17 production line and other aircraft in Hawthorne. He left the company for three years and returned in 1950. His continuous service covers 20 years and 9 months.

In 1950 he was in production for a year be-

fore going into mockup work. In 1954 he switched to the Environmental Lab at the Aircraft Division and stayed there until transferring to the Ventura Division in 1955.

"We ran all the landing system hardware for Mercury, Gemini and Apollo through this lab," he says. "It all received very thorough testing."

Although Mr. Sandell is "sorry to leave" Northrop he looks forward to returning to his native city of Minneapolis, Minn. and traveling in the U.S. "to places I've never see but always been interested in."



Mr. Sandell



SKILLED CRAFTSMAN
Dick Cronin displays his work.

Personnel May Voice Concern for Prisoners By Signing Petitions

Northrop Corporation personnel are once again being offered an opportunity to voice their concern for Americans being held prisoners of war in North Vietnam.

Earlier this year employees were urged to write letters to leading officials in North Vietnam expressing their concern for prisoners and those missing in action and presumed to be prisoners. Employees were invited to turn their letters in for free postage. Several hundred took advantage of this offer, or sent letters on their own.

Governor Ronald Reagan has now proclaimed Nov. 11 as POW/MIA (prisoner of war/missing in action) Day in California and has invited people to join in a spontaneous declaration to officials in Vietnam that America's citizens are vitally concerned.

The Air Force Association in California is taking a lead in helping conduct a drive to obtain signatures to petitions urging the North Vietnamese to abide by the provisions of the 1957 Geneva Convention pertaining to prisoners of war.

Floyd Damman of the Aircraft Division is vice president of the AFA in the State of California. He has arranged for copies of these petitions to be distributed to all Northrop facilities. They are now available for signatures in Northrop lobbies, in Personnel Activities offices and on bulletin boards throughout Northrop.

Employees who wish may sign the petitions. They will be collected Nov. 6 and forwarded to a central California location for transmittal to North Vietnam.

Lt. Gov. Ed Reinecke is coordinating the statewide drive. He notes that as many as 1,600 American men may be held prisoner in North Vietnam.

"These prisoners are hapless victims of a war in which they courageously performed their duty to their country. I think we have a unique opportunity to accomplish a crusade for human compassion without political or factional overtones. With your help, we can demonstrate to Hanoi that, despite divisions of opinion within our country, we can and will take a united stand to ensure the humane treatment of our men," he said.

Bon Voyage Roy Jackson



FRIENDS of Roy P. Jackson, facing camera right, former vice president and assistant general manager of the Aircraft Division, gathered recently to wish him luck in his new job. Mr. Jackson reports Nov. 2 to Washington, D.C. where he will become associate administrator of NASA's Office of Advanced Research and Technology.

Northrop Executives Brief AIAA On Company Products, Plans, Progress

A comprehensive briefing on Northrop Corporation, its products, progress and facilities, was presented last night at a meeting of the Los Angeles Chapter, American Institute of Aeronautics and Astronautics, at the Proud Bird Restaurant.

Dr. Donald A. Hicks, Northrop vice president for Research and Technology, led a top-notch group of Northrop executives making the briefing.

Representing the Aircraft Division was W. E. Woolwine, vice president—Engineering. Karl S. McCready, C-5 program manager, represented the Electronics Division. Dr. W. B. Simecka, manager, Technical and Marketing departments, presented Electro-Mechanical Division's portion of the briefing. Taking part from Northrop Ventura was Don Warner, manager of Engineering.

Bob Clooney of the Aircraft Division is chairman of the Los Angeles Section, AIAA. Dr. Richard Schamberg of the Corporate offices, was coordinator of Northrop's program at the dinner meeting. Dr. Peter Lissaman of NCL is chairman of the section's general meetings committee.

HAWAIIAN TOUR MEETING SET

An organizational meeting for Northrop family members interested in an NRC-sponsored year-end Hawaiian tour has been set for 7:30 p.m. Nov. 6 at the Alondra Club, Lawndale.

A new motion picture of the islands will be shown. Questions about the tour will be answered and light refreshments served. Deposits of \$50 per person will be accepted. Dinner may be served to those desiring it.

The tour price for the 11-day, four-island, visit is \$396.



MAIDEN FLIGHT OF THE BOEING 747B SUPERJET
New "B" model will be capable of longer range and greater payload than original 747.

SEEKS FAA CERTIFICATE

Boeing 747B in Maiden Flight Test

Maiden flight of the first Boeing 747B superjet was conducted Oct. 11 from Snohomish County Airport adjacent to The Boeing Company's Everett, Wash., facility.

Savings Plans Changes Must Be Made by Oct. 30

Northrop Corporation personnel eligible for participation in Northrop Savings Plans may now enroll in one or the other of the plans, change the amount of their contribution or fund allocation.

Effective date for changes will be Nov. 1, 1970. All change requests must be submitted no later than Oct. 30.

Hourly personnel who have participated in the plan continuously for four or more years may authorize deductions for contributions of \$2, \$4, \$6 or \$8 per week. For those participating less than four years the maximum contribution is \$6.

Salaried employees participating in the plan continuously for three or more years may contribute between 2 and 8 per cent of their base salary, expressed in per cent rather than dollars. Those participating less than three years may contribute up to 5 per cent.

Application cards C-35J (R2-70) must be used for this purpose. They are available through Industrial Relations offices.

PAGE OFFICIAL GETS DOD POST

Dr. Alden P. Sullivan of Northrop Page Communications Engineers has been named deputy assistant to the Secretary of Defense (Telecommunications and Resources Management).

Dr. Sullivan has served Northrop Page as manager of Management Development and Training since December 1967. He assumed his new duties Oct. 26.

NICB CHOICE

Lee Thornton, acting Corporate director of Management Development, has been selected to serve as one of 25 members on Development, Education and Training of the National Industrial Conference Board (NICB).

Following a one-hour, 30-minute shakedown flight the 747B landed at Boeing Field, Seattle. Jack Waddell, senior engineering test pilot, was at the controls. Mr. Waddell also piloted the initial 747 flight in February 1969.

Structural dynamics tests were performed on the initial 747B at Seattle prior to its departure for Edwards AFB, Calif., where it is slated to perform takeoff and landing tests. This test program is aimed at Federal Aviation Administration certification as a passenger airliner around the end of 1970.

About 115 hours of flight will be logged in testing.

To date, 42 of the 747B superjets have been ordered by 13 airlines.

First airline scheduled to receive the 747B is KLM Royal Dutch Airlines (which is to be the second one built). The first one, now in test, will be delivered to Northwest after test completion and refurbishment.

The new 747B has the same dimensions as the 79 Boeing 747 superjets already delivered to 14 airlines. Its maximum takeoff gross weight, however, is 65,000 pounds more than that of the 710,000 pounds gross weight 747s now in service, making possible greater range and payload. It will be capable of carrying a full passenger load more than 5,600 nautical miles nonstop.

The first 747B is the 88th Boeing 747 to roll off Boeing's final assembly line.

Time to Vote Available to Employees

Northrop personnel who are registered to vote but feel that because of shift or distance they may not reach the polls in time will be allowed necessary time off to cast their ballot.

Polling places will open at 7 a.m. on Tuesday, Nov. 3, and close at 8 p.m. the same day.

Personnel unable to reach their poll earlier than 7:30 p.m. be-

cause of work schedules should notify their supervisors no later than Friday, Oct. 30.

The supervisor will grant the necessary time off, up to two hours in some cases. Personnel will be paid for the specific time they take off to vote.

Such time will not count as "hours worked" when computing overtime.

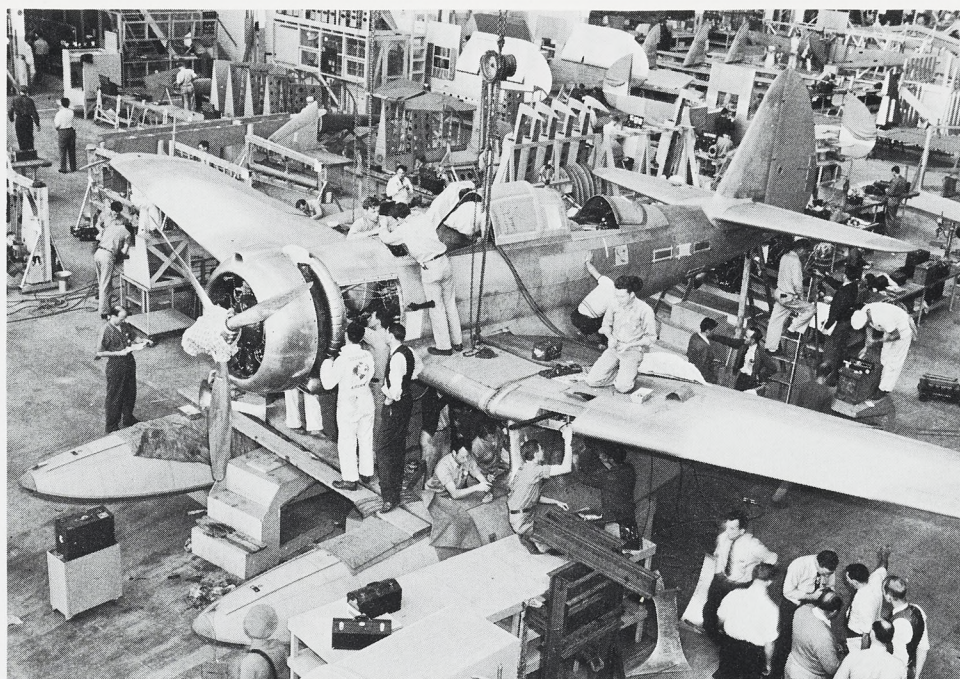
Presentation in Korea



NORTHROP-SPONSORED "Kuso" medallions for presentation to Republic of Korea Air Force pilots are presented to Gen. Kim Too Man, chief of staff, ROKAF, by Capt. R. Q. Wallace, USN, of the Naval Advisory Group. Looking on are Col. Rocco Palumbo, USAF, deputy commander, Operations, of the 614th Air Force Advisory Group, and Northrop's W. A. Weir, regional manager—Far East-North. Medallions depict a Northrop F-5 attacking a North Korean intruder boat. "Kuso" is the operational code word for the detection and destruction of intruder boats, a coordinated venture of the ROKAF and ROK Navy. Medallions will go to F-5 pilots completing an extensive syllabus in night attack training.



THE NORTHROP N-3PB WINGS OVER LAKE ELSINORE
First flight test of first Northrop aircraft was Nov. 1, 1940, 30 years ago.



BUSY TIMES ON THE HAWTHORNE ASSEMBLY LINE
As flight tests progressed, assemblers readied additional plane for flight.

Thirtieth Anniversary of First Flight of N-3PB is Nov. 1.

Long-time Northrop personnel will be doing some reminiscent rummaging through scrapbooks next month with the 30th anniversary of the initial test flight of the N-3PB.

The small seaplane was the first bird of the flock.

It went to flight in just eight months, paralleling the dramatic Northrop growth. In those days there were less than 200 people and sales dollars were counted in the hundreds of thousands.

Harry Parker, now at Ventura, hired in as Number 67 in the Engineering department when N-3PB design began. Carl Hoffman, an Aircraft Division man, was one of 20 in the plane's final assembly crew.

Mr. Hoffman and his co-workers rolled out the first plane from Hawthorne's Plant One and turned it over to an eight-man field operations crew headed by the late Tom Ruble.

The three-man patrol bomber built for the Royal Norwegian Naval Air Force was then hauled

some 75 miles to Riverside County's Lake Elsinore for testing.

Unfortunately the weatherman didn't know the name of a Northrop man on the crew and the weather was foul.

"It rained all day," remembers Max Fayrweather. "I was riding on the outside of the truck with Kenny Scott. Everytime we'd come to overhanging wires we'd push them up out of the way with sticks."

Improvising

When they got to Elsinore they mounted the twin floats. "First we had to fill sandbags to support a rusty old crane which would lift the plane up enough for us to put the floats on," Mr. Fayrweather recalls.

It was a real experience for the field operations crew; none had ever worked in water with an aircraft before.

"The plane would taxi around and we'd go out and meet it in waist-high waders. Then we'd tie it up to this little wooden wharf

we built," Mr. Fayrweather said.

Finally, after about a week of preparations, Vance Breeze took N-3PB No. 1 on its maiden flight of some 30 minutes. "It flew beautifully and Vance was very pleased," he added.

Moye Stephens, chief test pilot and a member of the board of directors, soon flew the craft and said it climbed "like a homesick angel bound for heaven."

The stormy winter weather presented problems on the ground.

"Elsinore was shallow and the winds whipped up waves 10 feet high," said Mr. Fayrweather. "So we filled the floats with water and sank the plane into water halfway up its pedestals.

"And as the rains continued we had to empty the sandbags and move the crane back four times because the shoreline kept advancing. It ultimately moved 30 to 40 feet." When the weather broke the men used bilge pumps to empty the floats.

Eight planes were ultimately christened in Elsinore's waters during the four-month period of late 1940 through early 1941. Fifteen Norwegian pilots were also training in them under the

supervision of Northrop crews.

"Those Norwegians were real daring pilots," said Mr. Fayrweather, remembering a hair-raising incident.

"This one fellow was showing off and trying to do a loop. When the plane turned upside down the weight of the floats started to put it into a spin and the pilot tried to open the canopy and bail out. Somehow it righted itself and landed easily."

They Go To War

In service, however, the Norwegians put their 24 N-3PBs to good use from 1941 to 1943. Official credits list 15 submarines found, nine attacked (seven damaged) and eight German aircraft damaged.

They were primarily based in Iceland for North Atlantic patrol duty in conjunction with the British RAF. They clocked 230 mph flying level and were armed with bombs and machine guns.

The last known version of the plane met an ironic fate about five years ago in southern Norway where it was used in training student mechanics. A particularly heavy snowstorm collapsed the building one night and the plane was crushed.

But the impact of the plane on Northrop personnel has not been forgotten. "In its day it was outstanding, we were real proud of it," said Frank Gibian who headed the Loft and Template section.

Its swift design-production time was "a real milestone in the industry," said Paul Bonham, an engineer who later was a spectator at Elsinore.

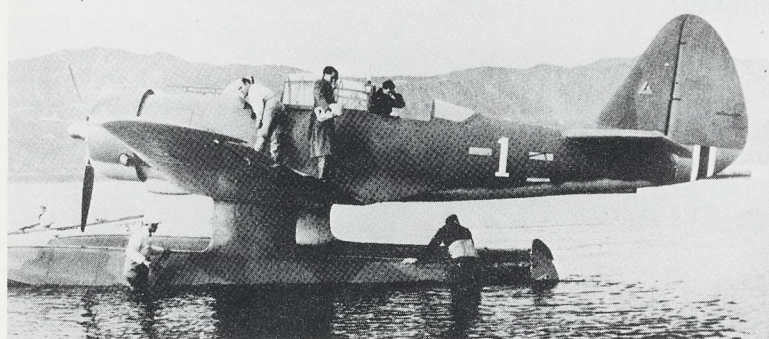
The N-3PB laid the foundation 30 years ago for the company today. It was a Northrop cornerstone.

JOSEPH SHERMAN NAMED PAGE VP

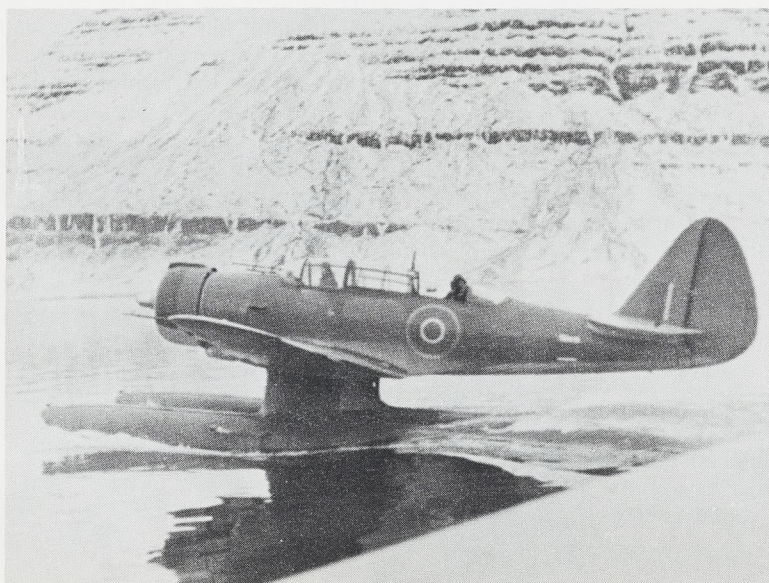
Joseph R. Sherman has joined Northrop Page Communications Engineers as vice president and director, Domestic Marketing.

Prior to joining Northrop, Mr. Sherman was vice president of Marketing for Farinon Miltech, Santa Clara, Calif., and before that he worked for Lenkurt Electric Co. of San Carlos, Calif.

**IS IT NEWS?
CALL EXT. 4273
HAWTHORNE**



THE N-3PB AT HOME AND ABROAD
Northrop crew, above, prepares first aircraft for stateside testing. Below, with markings of the Royal Norwegian Naval Air Force clearly visible, the daunt patrol bomber prepares for flight over waters near Iceland.



NORTHROP FLIGHT TEST CREW AT LAKE ELSINORE
Top row, left to right, Gene Welch, Rinn Phinney, Max Fayrweather, Harold Pederson, Larry Taylor, Bud Sennet, unidentified, Ed Cheswick. Bottom row, left to right, unidentified, Robert Watt, Tom Ruble, Sid Means, Louie Weltz.

Wally Helmick Bags Game Specimens for Museum



ELEPHANT WEIGHED 10,000 POUNDS
Wally Helmick stands by giant that stood 10 feet high.



NYASALAND WILDEBEEST WAS IMPRESSIVE
Professional hunter Alick Roberts, curator Von Senlemyre.



THREE-TON BLACK RHINOCEROS
Wally Helmick with specimen that caused anxious moments.

Do you know someone at Northrop who was recently chased by an elephant and intimidated by a rhinoceros? Well, if you see a guy wearing an elephant hair bracelet, ask him about it.

Wally Helmick, a proposal analyst in Major Proposal Negotiations at the Aircraft Division, recently returned from a five-week safari in Africa where he and his hunting companion, a

museum curator bagged 18 different species.

The animals, ranging from the 10,000-lb. African elephant which stood 10 feet high at the shoulders to a near record size 15-lb. red duiker, will be fully mounted and displayed in the Nature Museum of York County in Rock Hill, S.C.

The museum represents the largest collection in the U.S. and, most likely the world, of fully

mounted African animals — now 106 in all. Costs of the safari, including a professional hunter-guide and 15 bearers and skinner, were borne by the museum.

Mr. Helmick and the curator used a 7 mm Remington magnum, .375 magnum and .458 magnum to down the wild animals in the Selous Game Reserve in Tanzania nine degrees below the equator in East Africa.

When it was all over they returned with a three-ton black rhinoceros, 8,000-lb. hippopotamus, the elephant, a Lichtenstein's hartebeest and Nyasaland wildebeest (one was the 13th largest ever recorded and the other "about the 60th") and a puku.

Also, a record book Southern Impala with a 22½-inch lyre-shaped horn which makes it about the 100th out of 200 registered, an East African Kudu, wart hog, reedbuck, olive baboon, leopard, Selous zebra, crocodile bable and the red duiker.

"We also saw four more species, the common waterbuck, Livingstone's eland, bush duiker and bushbuck, but didn't shoot

them because the museum already has these specimens," he said.

"We were instructed to shoot only those species necessary for the collection and for food but no more. The exception being the personal trophies of a lion and African cape buffalo because there was an abundance of these in our area," Mr. Helmick said.

It was the second such trip for Mr. Helmick and, while he'd prefer to go again, he's afraid his wife and two children are going to put a stop to it. Perhaps his small adventures contributed to their anxiety.

The charging elephant got within 15 feet of their vehicle before they could achieve a safe separation, he said. And the rhinoceros suddenly appeared about 19 yards away ("I know because I paced it off later") while the hunter and skinner were skinning out a trophy.

"We were busy with the skinning when our game scout hollered 'Faro' which means 'rhino' in Swahili. All our guns were in the car, about 20 yards away,

and all we could do was run for it," he said. "We were lucky that the rhino didn't charge so no one was hurt."

As for the elephant hair bracelet, made from the tail hair of the elephant he bagged, "it's for good luck. I made it myself after seeing the Africans do it."



A SPOTTED KILLER
Wally Helmick and a fat leopard.



EAST AFRICAN KUDU WITH NICE HORN SPREAD
Wally Helmick with gun bearers display another museum addition.

Centro-American Club Pins Queen Title on Daughter

Seventeen-year old Rebeca Tourgeman, sister of three Northrop employees, was chosen Miss Centro-American 1970 at the annual ball of the Centro-American Club.

Miss Tourgeman represented her native Panama in the beauty contest. She is a brunette, five feet, seven inches tall with brown eyes. She is a student at Hollywood High School.

Her brothers are Eddie Tourgeman, punch press, Victor Tourgeman, assembly, and Jim Tourgeman, who formerly worked in Paint and Process. The Tourgemans originally came from Panama to the United States in 1958 and have since become naturalized American citizens.

As part of the honors for being selected Miss Centro-American, Rebeca reigned as queen of the annual ball and received an all-expense tour of Mexico and Central America, during which she will visit her former home in Panama.



Rebeca Tourgeman

WE ASKED THEM—How Do You Feel About Picking Up Hitchhikers?



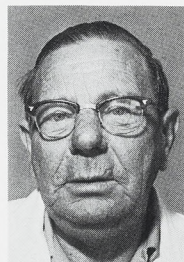
Patricia Jennings, secretary, Electro-Mechanical:

I feel sad for some of them and would like to help, but I wouldn't pick up one under any circumstances.



David Alexander, Machine Shop, Electro-Mechanical:

Picking up hitchhikers? I don't think it should be done. It just isn't safe anymore.



Herman Hobbs, tool and cutter grinder, Aircraft:

You can't trust hitchhikers anymore. Years ago I would, but not now.

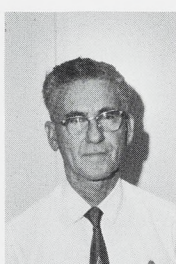
Jean Ward, clerk, Aircraft:

I think it is very foolish to pick up hitchhikers. You never know what type of person you'll get today.



Manuel Sandoval, electronic test inspector, Electronics:

I feel it is unsafe to pick up anybody that's hitchhiking. Anybody that does is just asking for trouble.



Paul Dudley, Manufacturing associate, Electronics:

I wouldn't recommend it. Picking up a hitchhiker is like asking a stranger to spend the night at your home. More than likely you will wind up with trouble.

Willie Bradford, secretary, Ventura:

I thoroughly disapprove of it. You're taking too much of a chance with your life and property. My children are absolutely forbidden to pick up hitchhikers.



Ed Kephart, 747 leadman, Ventura:

Although I used to hitchhike when I was in the service, I don't pick up hitchhikers. Hitchhiking can be dangerous for the rider as well as the driver. You never know what you're getting into.



Classified

Classified ad service is provided free of charge to all Northrop personnel. Ads for agencies, commercial enterprises and private businesses are not accepted. The Northrop News reserves the right to edit or omit ads. Obtain ad form C67 from organization clerk and mail ad to Northrop News, 170, zone 62. Ads are limited to one item and one ad per person each issue. Deadline is noon Wednesday, one week before publication.

Automobiles For Sale

- T-Bird, 1966 2-dr. landau h/top, 4 Goodyear 990 radial tires, full power, a/c, 8-track stereo tape player, & AM radio, \$1,750. 714-774-8251. A
- Chevrolet, 1957 2-dr. sedan, V-8, auto., recent o/haul, \$200. 213-676-9330. A
- Cadillac, 1963, 4-dr., full power, \$600. 213-372-1632. A
- Station Wagon, 1960 Chevrolet, \$265. 213-675-4786. A
- Corvette, 1966, a/c, auto., AM-FM radio, \$2,200. 213-542-3915. A
- Corvette, 1961, \$1,100. 213-579-2240, 213-573-9345. A
- Scout, 1964, w/hubs, o/drive, \$1,200. 213-323-0134. A
- Ferrari, 1962 GT 2 + 2, \$5,000. 213-645-3381. A
- Falcon, 1964 Futura, 2-dr. h/top, 170 spec. 6 eng., fact. a/c, Ansen sprint whls., new tires, brakes & stick shift trans., \$700. 213-657-3074. A
- Station Wagon, 1963 Ford Country Sedan, \$400. 213-378-4833. A
- Porsche 912, 1967, chrome wheels, \$3,700. 213-860-2305. A
- Chevelle, 1966, 427 cu. in. 520 h.p., Muncie 220 trans., equipped for racing or street, \$2,300. 213-325-4138. A
- Chevrolet, 1956 Nomad, 283 cu. in., 2 4 bbls., auto. shift, \$500. 213-326-6176. A
- Corvette, 1963, auto. trans., \$1,395. 805-642-4142. A
- Volkswagen, 1969, sunroof, AM-FM, new tires, std. shift, d/brakes, \$1,700. 213-433-0625. A
- Buick, 1964 Riviera, full power, a/c, new eng., \$1,250. 213-377-4251. A
- Cadillac, 1963, full power, a/c, 4-dr. Sedan de Ville, new trans., \$700. 714-635-4183. A
- Chevelle, 1967 Malibu, 327 cu. in. high perform. headers, mags & tach, 4-on-the-floor w/Hurst shifter, \$1,500. 213-671-9633. A
- Chevrolet, 1955 coach camper, \$600. 213-675-2159. A
- Volkswagen Camper, 1965, rebilt. 1500 cc eng., paneled, bunks, \$1,350. 213-396-6739. A
- Station Wagon, 1964 Rambler 990, V-8, a/c, p/s, p/b, auto. trans., AM-FM radio, \$500. 213-370-7904. A
- Plymouth, 1966, \$300; T-Bird, 1964, \$350; min. bids for Cadillac, 1966, \$1,595; Barracuda, 1968, \$1,095; Grand Prix, 1968, \$1,795. Credit Union ext. 1117. A
- Mustang, 1967, auto., new brakes, fully tuned, \$1,300. 213-679-1631. A
- Chevrolet, 1963, 409 cu. in., cam, dual quads, Hurst 4-spd., \$850. 213-645-7715. A
- Austin Healey, 1965 MK III sport roadster, deluxe 3000, \$1,550. 213-372-1504, 213-545-1325. A
- Pickup, 1969 Ford F250, 4-whl. dr., 360 V-8, 4-spd., camper shell, \$3,850. 213-378-5856. A
- Austin Healey, 1954, 100-4 classic rebilt. eng., trans. & rearend, \$675. 213-328-1520. A
- Pontiac, 1967 Bonneville, 4-dr. h/top, all power, a/c, \$1,650. 213-372-8903. A
- Porsche, 1968 coupe, Model 911-S, mag. wheels, \$5,900. 213-378-1486. A
- Ford, 1962 Ranchero, V-8 stick, r/h, \$375. 213-672-3133. A
- Truck, 1967 GMC, ¾, 6 cyl., custom cab, auto. trans., p/s, 8' Weekender cabover camper, sleeps 5, \$2,995. 213-372-1893. A

Household Items For Sale

- Roll-away Bed, w/innerspring mattress, \$25. 213-325-5245. B
- Chair, upholstered, brown, \$15. 213-644-3922. B
- Dinette Table, dropleaf, 4 chairs, \$30. 213-670-5927. B
- Rug, brown-gold 9x12, oval w/fringe, \$25. 213-374-7165. B
- Sofa, cocoa brown fabric, 6', \$25. 213-834-0586. B
- Washing Machine, 1964 Lady Kenmore 800, w/sud saver, \$25. 213-375-4591. B
- Dining Room Table, fruit wood finish, 42" x 62", opens to seat 12 w/3 skirted leaves, 4 embossed naugahyde fully uphol. chairs, \$165 or sell sep. 213-645-3986. B
- Freezer, small Amana chest-type, \$50. 213-377-3487. B
- Stove, O'Keefe & Merritt, auto. pilot, \$45. Box 2101. B
- Dinette Set, antique white, 4 chairs, 2 extra leaves, matching crystal hutch w/sliding glass doors above, \$175. 714-968-5343. B
- Stove, Kenmore elec., dbble. oven, less than 2 yrs. old, \$150. 714-557-3067. B
- Overcoat, 2 raincoats, size 42-44, \$10 ea. 213-295-0778. B
- Dinette Set, Virtue Bros., beige, table w/wood grain formica top 38" x 48" w/leaf, 4 chairs, \$35. 213-372-3160. B
- Stove, O'Keefe & Merritt, 1 yr. old, \$95. 213-675-3087. B

Household Items For Sale

- Sofa-Bed, 6', gold leaf design, \$125. 213-323-5497. B
- Vacuum, Kirby, w/hose & cleaning attachments, \$40. 213-832-0606. B
- Refrigerator, Philco, \$30, other household items. 213-532-7853. B

Miscellaneous For Sale

- Dinner Ring, ladies' diamond, never worn, guaranteed & exchange certificate, \$295. 213-676-2597. C
- Trailer, 21' Mayflower, Rosarito, Mexico, new refig. & sofa bed, butane stove & htr., \$35 mo. rent incl. electricity & water, \$1,250. 213-439-6432. C
- House Trailer, 1958 Ideal, 23', w/lge cooler, \$1,500. 213-675-9048. C
- Skis, men's wood laminated, 210 cm w/bindings, \$20. 714-842-2896. C
- Tools, 7-center drills, 27 pc. Morse taper drill set, 3 end mills, 12 reamers, other misc. tools, \$25 or sell sep. 213-545-6719. C
- Ski Boat, 12', 35 h.p. Evinrude, \$550. 213-645-3592. C
- Surfboard, Schwinn Sting Ray, & 8' dinghy, \$30 ea. 213-675-7915. C
- Motorcycle, 70 Honda SL100, under warranty, \$350. 213-676-5141. C
- Share, 1/3 in Cessna 182, 4-place airplane, dual omni, transpower, based at Hawthorne, \$2,750. 213-638-7463. C
- Acreage, 5 acres, Antelope Valley, view, near paved rd., \$400 dn., \$6,000. 213-378-1026. C
- Motorcycle, Greeves, 250 cc, square barrel, \$295. 213-923-3526. C
- Tire & tube, for pickup truck, Goodyear hvy. duty, 6-ply nylon 700 x 15, never used, \$25. 213-329-3476. C
- Books, from 1890 & contemporary, biography, historical & novels, 50c & up. 213-474-5726. C
- Sailboat, Coronado, 25' sloop, many extras, at King Harbor, \$5,950. 213-378-1561, 213-545-1672. C
- Surfboard, 7' Rick roundtail, \$40. 213-374-8608. C
- Motorcycle, 1965 Yamaha, 80 cc, dirt bike, Gyt kit, 200 mi. on rebilt. eng., extra parts, \$200. 213-425-7243. C
- Guitar, Gretsch Country Gentleman, case, \$385. 213-887-9218. C
- Tape Recorder, AKIA stereo, 3-spd. sound-on-sound, \$100. 213-390-4534. C
- Motorcycle, 1969 Yamaha DT-1 Enduro, 1,500 mi., high front fender & compression release, \$600. 213-372-4589. C
- Accordion, Universal, 120-bass, 10 registers, full size w/adjust. straps, cover, & padded case, \$150. 213-371-9651. C
- Bicycle, girl's 26" Schwinn, lightweight, \$25. 213-377-4623. C
- Mini Bike, 3 h.p. Briggs & Stratton, less than 100 mi. use, \$75. 714-962-4134. C
- Motorcycle, 1970 Honda, 350 cc, many extra access., used 3 mos., \$680. 213-675-9659. C
- TV, b&w 21" console, \$35. 213-676-7357. C
- Mini Bike, Taco 44, 3½ h.p., souped-up to 40 mph, \$120. 213-274-0589. C
- Movie Projector, Kodak M80, regular 8 & super 8, \$90. 213-633-3993. C
- Golf Clubs, 1, 2, 3, & 5 woods, 2-9 irons & sand wedge, \$35. 213-340-0545. C
- House, 4-bdrm., 2,000 sq. ft., family rm., extra lge. service rm., P.V. Peninsula, \$49,900. 213-324-7059. C
- Video Tape System, recorder, camera, 82-channel monitor, & misc., \$650. 714-522-4934. C
- Kitten, Burmese, male, champagne, champion lines, CFA, \$45. 213-377-9414. C
- Typewriter, L. C. Smith, \$20. 213-377-3806. C
- Motorcycle, 1969 Yamaha 100 sgl., stripped for dirt, expansion chamber, \$260. 213-645-6211. C
- Camera, Eastman Kodak 35, flash attach., filters, Weston light meter, \$25 or sell sep. 213-846-5589. C
- Guitars, Magnatone, solid body, custom finish, elec., \$40 ea. 213-373-1902. C
- Sailboat, 24' fiberglass, 1½ yrs. old, outbd. & boat bath, \$3,800. 213-374-7928. C
- Mini Bike, 3 h.p. Briggs & Stratton, \$60. 714-532-1510. C
- Surfboard, custom 6' 11", \$55. 213-833-4191. C
- Stroller, seldom used, spring suspension, 2nd clip-on seat, \$20. 213-375-1901. C
- Camper, slide-in cab-hi, furn., fits ¾ or ½ ton truck, \$430. 213-835-0717. C
- Mini Bike, Cat 400-X, 4 h.p. B.&S., \$100. 213-784-8839. C
- Barbells w/weights up to 75 lbs., \$8. 805-498-3587. C
- Encyclopedias, World Books, up to date, \$60. 213-328-7989. C
- Air Conditioner, 18,500 b.t.u., 1 yr. old, \$137. 213-679-6549. C
- Motorcycle, 1969 Suzuki 350, 6-spd., \$550. 213-374-2127. C
- Motorcycle, 1967 Honda 305, \$400. 213-329-4885. C
- Cruiser, 27' 1967 Owens Express, single screw, 210 h.p., fiberglass, 65 w. ship-to-shore radio, depth finder, bait tank & pump, sleeps 4, fully C.G. approved, many extras, \$9,500. 213-377-7194. C
- Drafting Table, linoleum adjust. top, 42" x 60", \$15. 213-376-4831. C
- Pool Table, 4' x 7½', balls, rack, 2 cues, bridge, \$35. 213-699-8173. C
- Cello, full size, imported Stradivarius, \$85. 213-756-1238. C

ELECTIONS NEAR

Northrop Recreation Club elections to name commissioners of associations begin this month and continue into December.

These elections, held to name individuals who will represent the associations on the NRC Employees' Council, are held once each year. Bulletin boards now contain announcements of exact dates for each election.

Rides and Riders

Rides Wanted

8 a.m. — 4:42 p.m.

Springdale & Westminster, Huntington Beach. Paul Eckroth, Aircraft ext. 1466, 1477, 714-846-1858.

Imperial Blvd. & Lakewood Blvd., Downey. Morris Brown, Aircraft ext. 4487, 213-861-8508.

Rides Offered

8 a.m. — 4:42 p.m.

Springdale & Westminster, Huntington Beach. Paul Eckroth, Aircraft ext. 1466, 1477, 714-846-1858.

Wanted to Buy

Bicycle, boy's 10-spd., will repair. 213-375-8460. D

Drafting Machine, Bruning or Vemco preferred, right hand 24" or combination 24 & 30". 213-632-2642. D

Motorcycle, Honda 175, in good condition. 213-375-8804. D

High Chair, used, good condition. 213-671-6702. D

Volkswagen, 1964-1967, good condition, pvt. party only. 213-454-5985. D

Tripod for 16mm camera. 213-532-9153. D

Stenotype dictation records. 213-676-5654. D

For Sale or Trade

Test Equipment, electronic, trade for photographic equipment of equal value. 213-630-4188. E

Rentals Offered

Apt, unfurn., lge. deluxe 2-bdrm., cpts., dps., btlins, breakfast bar, pool, adults, no pets, \$150 mo. 213-325-2512. G

Apts, 3-bdrm., 3 baths, owner's unit, \$325 mo.; lge. 1-bdrm., 2 baths, \$175 mo., incl. amenities, in Inglewood. 213-670-6084. G

Apt, 3-bdrm., newly redecorated, 2-baths, cpt., dps., closed gar., lge. sundeck, near Northrop, children OK, \$225. 213-675-7938. G

Cabin, Moonridge, Big Bear Lake, 3-bdrm., 2 baths, f/place, completely furn., family only, \$125 wk. \$50 w/end. 213-326-7232. G

Duplex, 2-bdrm., unfurn., cpts., btlins, soft water, close to Northrop, \$125 mo. 213-675-3866. G

Apt, owner's, 2-bdrm., upstairs, 2 entrances, closed gar., extra gar. avail., avail. about Dec. 15, close to Northrop, \$170 mo. 213-756-3669. G

Vacation Cabins, Idylwild, 1 & 2 bdrm., stream, patio, f/place, \$30-\$35 w/end, \$80-\$90 wk. 213-868-8040. G

Duplex, 5-rm. apt., near Crenshaw & Imperial, \$175 mo. 213-644-1990. G

Personals

I wish to thank all of my Northrop friends for the wonderful party given me upon my retirement. I will never forget them at Northrop. FANCIS GLASSER. L

I sincerely want to thank everyone who contributed in any way to make my retirement day one I shall always remember. LEONA DIETRICH. L

Thanks to all Northrop personnel especially Santa Fe & Alameda friends for their many acts of kindness after the loss of our husband & father, Moses Gomes. GRACE GOMES & CHILDREN. L

I wish to thank all my friends at Northrop for the wonderful party upon my retirement. A. R. CARR. L

Fly at low club rates, IFR equipped Cessna 172s & Bonanzas. 213-671-2852, 213-645-2076. L

I would like to thank all of my Northrop friends for the flowers & expressions of sympathy in the loss of my mother, Mrs. Maude Sturgill. WILLIAM M. STURGILL. L

My sincere thanks to all the wonderful friends for the cards, letters & gifts received during my recent illness. JERRY H. MAREK. L

For Sale or Trade

Dune Buggy, VW tube frame, off road, 1957 eng. & trans., new tires & brakes, \$650 or trade for VW sedan, small car or bike of same value. 213-644-0359. M

Ambassador, 1969 SST, 4-dr., r/h, p/s, p/b, a/c, \$2,650 or trade for Ford or Chev. van. 213-671-1102. M

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HAWTHORNE

EDITOR'S NOTEBOOK

Over the years we have published many retirement stories, each outlining the accomplishments of Northrop personnel during long careers. However, we now feel we have only skimmed the surface without really knowing what a career is really all about. Our enlightenment comes from Aircraft Division members of Product Support and Graphics organization who put together an interesting bit when Warren Hageman, artist for the F-5 Service News and Talon Service News, retired after 42 years of work, 19 of them at Northrop.

Mr. Hageman's talents have been utilized in publishing more than 50 editions of one and 40 editions of the other publication. He used, we are told, more than seven gallons of ink, numerous pairs of scissors, miles of backing and in the process wore out more than 1,000 drawing pencils. More, the two publications receive more than 150 requests each year to re-publish stories and artwork he has helped prepare.

In a lighter vein Mr. Hageman's friends reason that in 42 years of work he has: gotten up 9,600 times early in the morning to go where he didn't necessarily want to go in the first place—work; spent more than \$5,000 going to and from work; wore out the seats of 54 pairs of trousers; shaved 9,600 times and wore out 1,600 razor blades. With due respect to Mr. Hageman's wife, Irene, the friends noted she forced him out of bed those 9,600 mornings, packed 9,600 lunches containing 38,000 slices of bologna and 1,000 loaves of bread. More, it was she who refused to return to Cleveland when the couple visited here in 1947 which led, in time, to his Northrop career.

An interesting sidelight is the information his friends provide on just how to get along with a spouse. It seems Irene bugged him for months to paint two bedrooms and stain redwood items on the patio. Warren listened — then sold the house. This bit about all those "get-ups" shook us up a bit, since we are dismayed to think we are facing the same thing. In fact, the thought is so tiring that, with your permission, we'll forget the other three pages we intended to write on this notebook and sit down for a short rest.



WARREN HAGEMAN
Framed by his work.



PAT SULLIVAN
With J. V. Holcombe.

After a brief repose, and with an Irish gleam in our eyes, we tackle item two, which also concerns an interesting retiree. She is Pauline "Pat" Sullivan, a lady who has been a devoted employee in Northrop's Washington office for a quarter century. On her final day at work Miss Sullivan received this wire: "For 25 years the Washington office and Pat Sullivan have been synonymous. It will not be the same without you. Sincere wishes for a happy retirement." It was sent by Northrop President Thomas V. Jones.

After graduating from Denver University, Pat Sullivan came to Washington in 1937 as political secretary to the late Senator Edwin C. Johnson. She worked with him until 1943, then worked for the Aircraft War Production Board. She came to Northrop in 1945, just one year after the Northrop Washington office was opened.

Northrop Vice President J.V. Holcombe, the Eastern Region office manager, toasted her retirement and presented her with a Northrop 25-year emblem at a party attended by her many friends in the area. Pat made one final promise to all—she will be around next St. Patrick's Day to pour Irish coffee for one and all, and for many more to follow.

* * * *

Add these names to Northrop families who have selected the Boeing 747 superjet for their personal travel. Al Zurbruegg and his wife flew New York-to-Los Angeles during their recent vacation. And Andy Anderson and his wife made two 747 hops, Paris to New York via Air France, then New York to Los Angeles aboard American Airlines in returning from a recent vacation in Spain.

NORTHROP NEWS

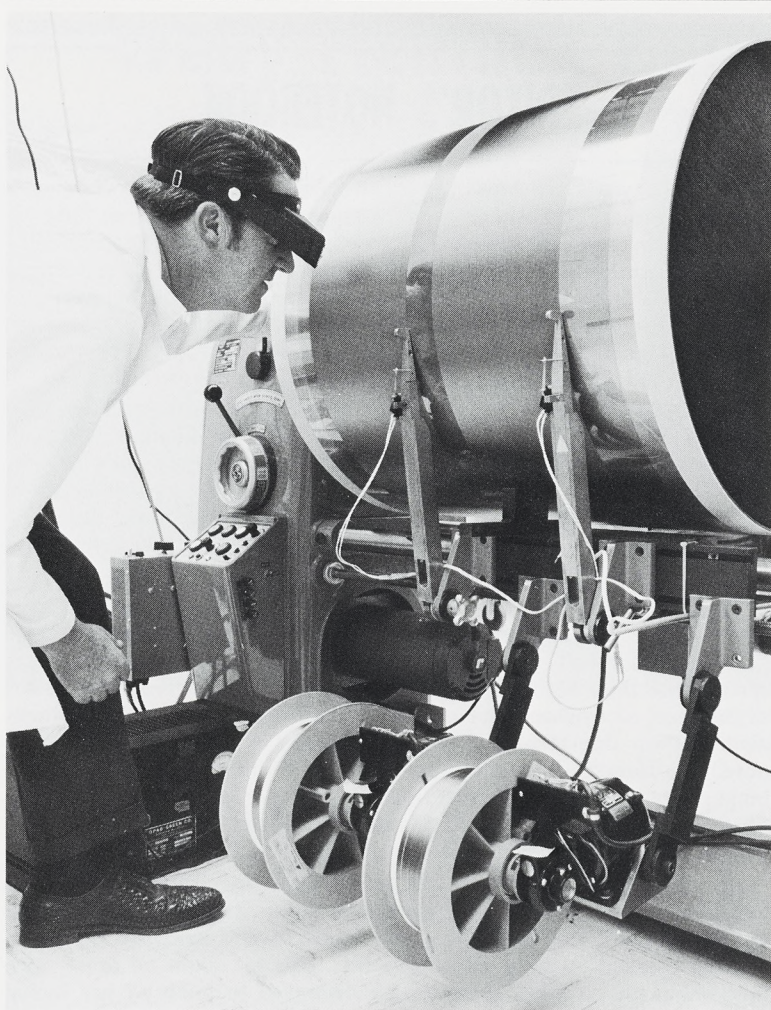
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No. 21

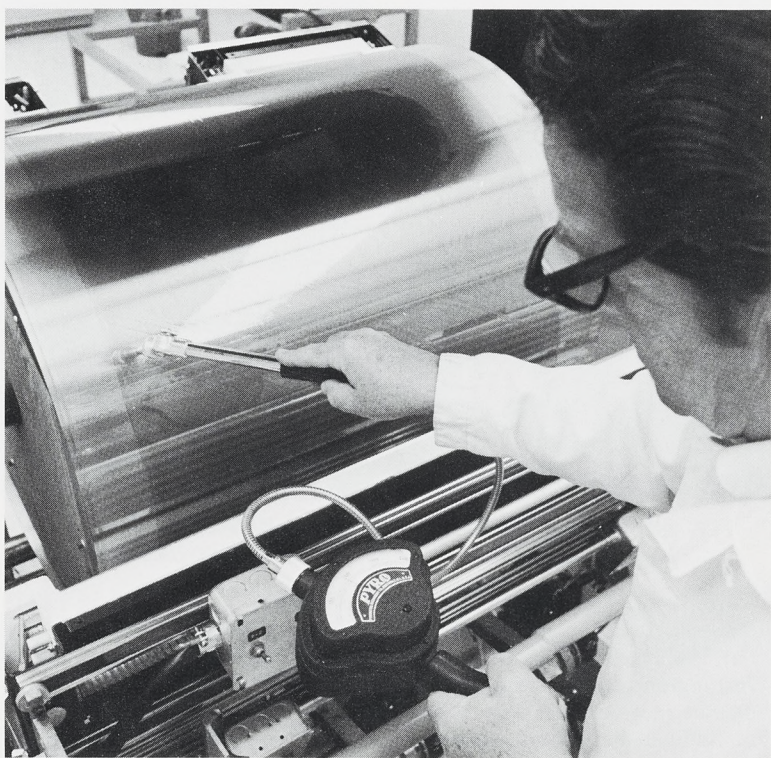
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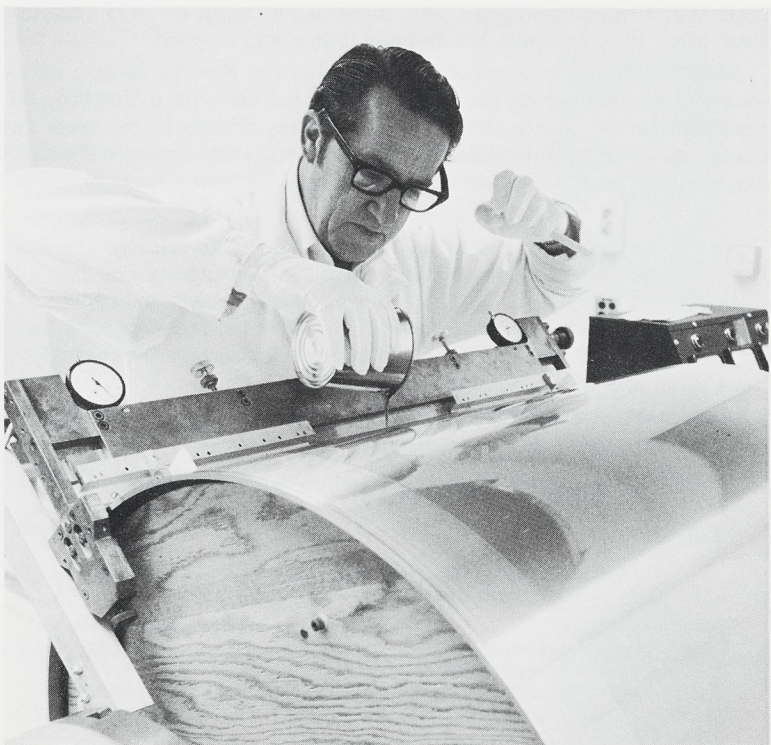
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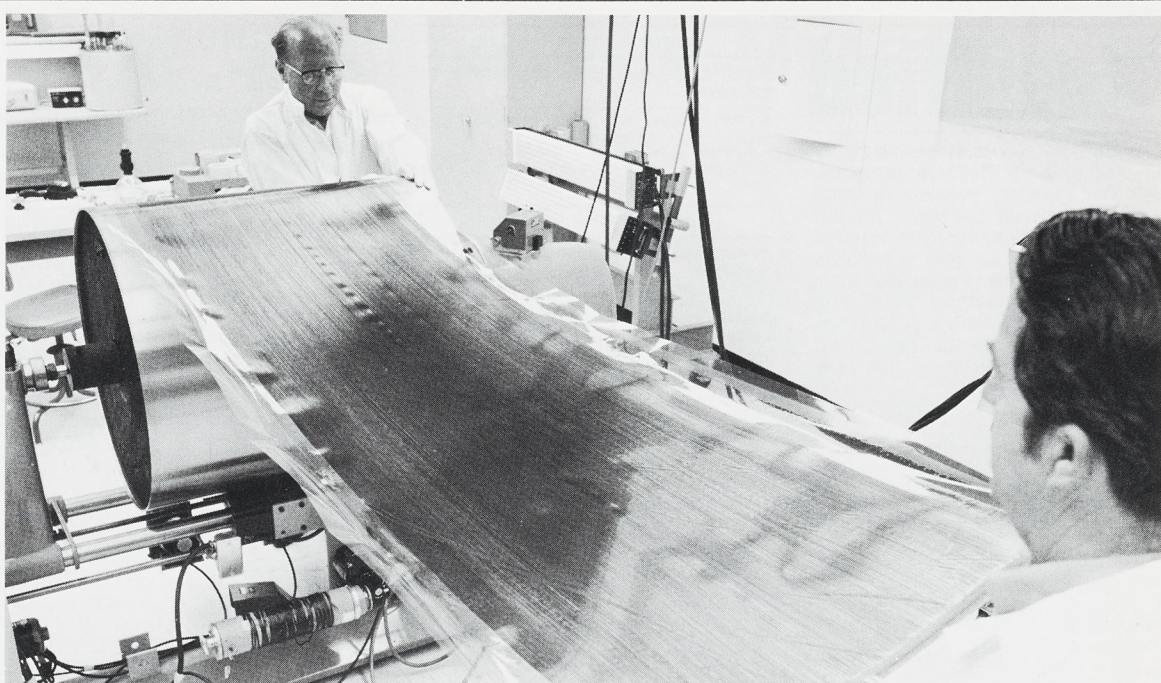
FILAMENT is precision wound onto drum from two spools which receive careful scrutiny from Mr. Tovlum. Nearly 200 strands cover each inch.



A **PYROMETER** is used to measure the temperature of the film on the drum. Infra-red lamps are suspended over revolving drum and respond to sensitive controls to control proper level.



TAG TOVLUM initiates procedure by putting polyimide resin onto drum while controlling distribution of thickness.



SELLERS BUSH, left, joins Tag Tovlum in removing the big one-ply sheet from the drum. The plastic-like mylar coating is stripped off the material before it enters the next phase in the process. This sheet is nearly eight feet long and two feet wide.

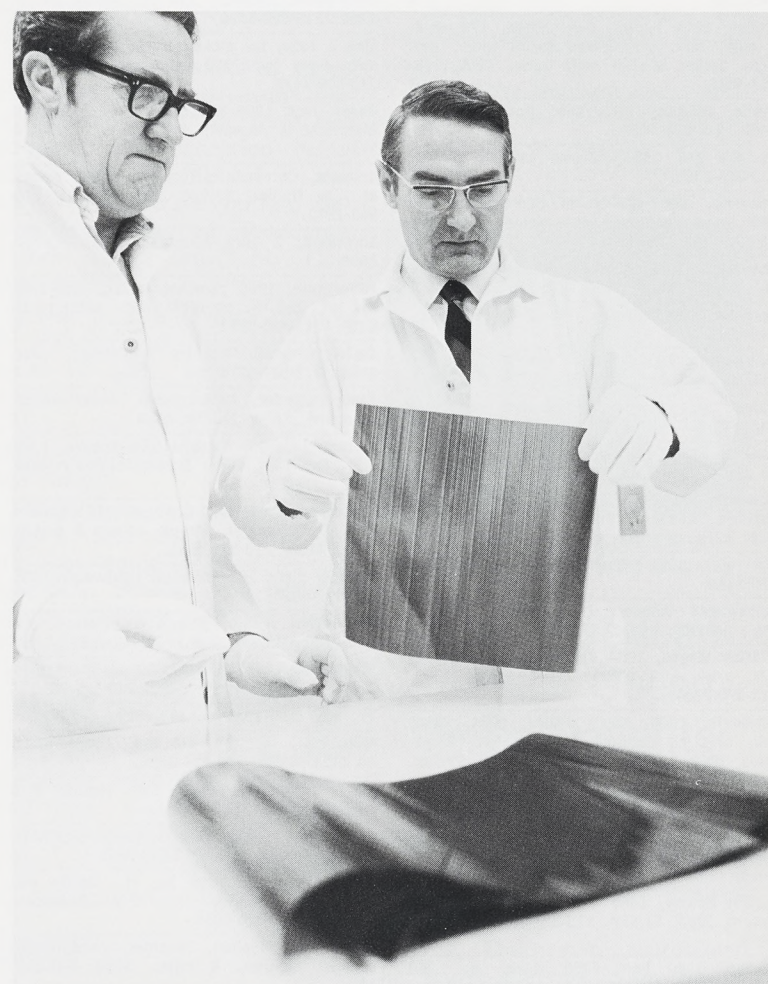
Looking At Advanced Composites

Part of the Ventura Division's little-known research and development work is in the field of advanced composites. The program's goal is to produce aircraft structural materials which have the strength and stiffness of steel but only a fraction of the weight.

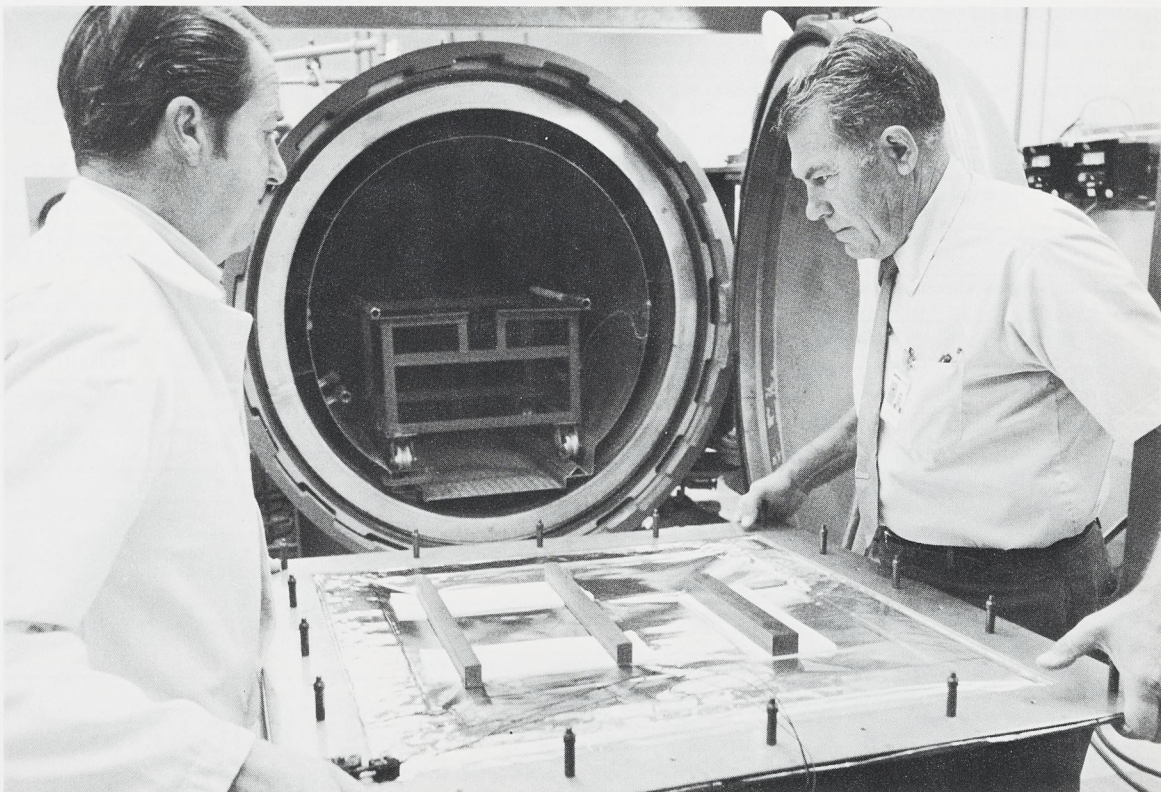
The basic process, demonstrated initially at the Northrop Corporate Laboratories and further development in the Ventura Division program, involves very small strands of boron which are wrapped around a drum, treated with a resin and chemicals under heat and then laminated into several plies to form the finished product.

The Ventura program is under the direction of Dr. Robert Johnson. Working in the laboratory under extremely clean (white smocks and gloves) conditions are Harvey Linebarier, Tag Tovlum and Sellers Bush.

These photos by Robert Thornton, with the sequence beginning at lower left and running clockwise, illustrate some of the production steps involved in producing these broad goods.



HARVEY LINEBARIER right, and Mr. Tovlum inspect a square, one-ply sheet while remainder of sheet lies in foreground. Mr. Tovlum has just wiped away small specks of dust after cutting.



MULTI-LAYER PIECE encased in a vacuum bag and weighted down by steel bars is "baked" in small autoclave and comes out laminated broad goods. Loading it are Mr. Tovlum, left, and Bud Lindsay. Final phase involves extensive analysis and testing of the finished product.

Warner, Evans Are Vice Presidents; Bridwell Promoted

Two Ventura Division men have been named vice presidents and a third has been promoted to a position in the Product Development department.

The new vice president of Production Operations is John E. Evans. Donald D. Warner is now vice president of Engineering, according to the double announcement by Welko E. Gasich, Corporate vice president and division general manager.

Announcing that William L. Bridwell is the new manager of Customer Requirements was George C. Grogan, Jr., vice president of Product Development.

Mr. Evans, a 22-year Northrop employee, succeeds M. A. Maurer who held the post seven years. Mr. Maurer has been elected president of an Eastern firm.

Mr. Evans joined Northrop at the Aircraft Division in 1948. At Hawthorne he held engineering and management positions in Flight Test and was involved in the YB-49, F-89 and SSM-62 programs.

Transferring to the Ventura Division (then Radioplane) in 1953, Mr. Evans progressed through management of flight test engineering and instrumentation design activities to become director of Test Engineering and Field Operations.

He moved into the Manufacturing department in 1965 and in 1968 became director of Manufacturing Program Planning. He became director of Materiel and Production Control in 1969.

Mr. Evans who has a bachelor's degree from Rensselaer Poly-

technic Institute, has had additional technological and management training and is participating in the Advanced Management Program of the Harvard Business



Mr. Warner



Mr. Evans

School.

Mr. Warner joined Northrop in 1951 at the Aircraft Division. He served in management capacities for two missile programs before becoming chief of Structures and

Mechanical Design for the T-38 and F-5 programs in 1956.

He had key management positions in the X-21 and Condor programs and was manager of the R&D Engineering department at Hawthorne. In mid-1968 he transferred to Ventura as director of Design, Analysis and Test and became manager of the Engineering department in June of 1969.

A graduate of the University of Minnesota, Mr. Warner has done both technical and management-oriented graduate work at UCLA and Stanford.

Mr. Bridwell came to Northrop in 1956, three years after receiving a degree in physics from the University of Texas.

His first assignment was as field test director for Crossbow

and XQ-4B at Holloman AFB, N.M. From 1961-68 he was group chief, Field and Flight Operations and then group chief of the Engineering Test group.

In 1968 he became test director and deputy chief project engineer for the Mark 30 Program and in 1969 was named manager, System Test and Evaluation, for the B-52 decoy proposal.

"We anticipate that in today's extremely competitive business environment these men will contribute significantly to the progress of the Ventura Division," noted Mr. Gasich.



Mr. Bridwell

Simpson Marks 25 Years



CONGRATULATIONS are extended Lloyd Simpson, left, on completion of his 25th year with Northrop by General Manager Welko Gasich.

Lind At Quarter-Century, Four Receive 15-Year Pins

Thanksgiving Day will have special meaning for Ventura Division's Jack Lind. On that day he will mark 25 years of continuous service with Northrop.

Mr. Lind began his Northrop career Nov. 26, 1945 at the Aircraft Division in Hawthorne as a

tool planner in Manufacturing Engineering working on the Flying Wing program.

He later became an expeditor, leadman, and general supervisor of Release Control in Manufacturing Control before transferring to the Ventura Division (then Radioplane) in 1959 to specialize in scheduling.

Using the expertise in system integration he developed at the Aircraft Division, Mr. Lind set up a full production schedule for the RP-76 target drone.



Mr. Lind

After a stint as a supervisor of Order Release, B/P Control and Tool Control in Production Control and Materiel he is now in charge of all manufacturing schedules for Production Operations.

Mr. Lind has been treasurer of the Management Club.

Four Venturans qualify for 15-year pins in November.

They are Bob Cole, Master Scheduling and C/SPCS; Inga Frostick, secretary to Bill Kearney; Carol Mann, Blueprint Control; and Delio Piantino, 747 Assembly Control.

SAFETY GROUPS ARE APPOINTED

Safety Committee appointments for the Ventura Division have been announced by Rex Fairless, manager of Industrial Relations.

George Johnson is chairman of the General Safety Committee.

Others on the committee are Mr. Fairless, Al Binsacca, Gary Bucsis, Clark DeSpain, Jack Haley, Chuck Simmers and Warren Sparks.

Mr. Sparks is also chairman of the Manager's Safety Committee.

With him on that committee are Chat Chatelain, Nurse Elinor Eckels, Don Fisk, Harry Parker, Dick Shewmaker and John Ste-man.

Chairman of the Workman's Safety Committee is Mr. Fisk.

Also on that committee are Gil Baca, Vera Bailie, Norm Crate, Pat Meltzer, Cliff Mileham, Russ Opfer and Bob Vogt.

Mr. Binsacca chairs the Spe-

(See COMMITTEE, page 6)

NORTHROP NEWS

VENTURA DIVISION

Northrop Corporation, Los Angeles, California

Vol. 28, No. 22

November 11, 1970

John Lawrence's Long Northrop Career Began With Flying Wing, Ended With B-1

From the Flying Wing to the B-1, John Lawrence has covered a lot of aircraft and target drones in 24 years and 7 months with Northrop. That formal association ended Oct. 30 with his retirement from the Ventura Division.

Mr. Lawrence started his Northrop career Dec. 4, 1944, at the Aircraft Division as a designer in the wing and empennage group on the P-61 Black Widow, the Flying Wing and later the Snark missile.



Mr. Lawrence

In October 1953 he transferred to the Ventura Division (then Radioplane) and became supervisor of the Airframe Design branch and the Crossbow and the XQ-4 drones.

He left the company at the end of the XQ-4B program (March 1961) to work for what is now

Philco Ford, but returned 15 months later in June 1962 to advanced design at the Ventura Division.

He led drone design groups, fabric and mechanical design in the Apollo Program and was in charge of design of the 747 fairings. His latest assignments have been on the B-52 decoy and B-1 landing system proposals.

Mr. Lawrence was active at Ventura as president of the Recreation Club for two years, commissioner four times for the Rod and Gun Club and a first vice president of the Management Club.

He recalls his association with

the members of the Rod and Gun Club, of which he is a charter member, as his warmest Northrop-related experience.

The native of Tampa, Fla., and graduate of Tri-State College in Angola, Ind., lives with his wife of 31 years, Jean, in Van Nuys.

But next May they will sell their home and move to a 20-acre plot which they own near Bend, Ore. They will build on the land and live there.

"There's lots of good hunting and fishing up there," Mr. Lawrence told the Northrop News. And, as far as he is concerned, the best way to spend retirement is with a rod and a gun.

DCAS MANAGEMENT MAN USES 'TOTAL SYSTEMS' PLAN

Salvatore Joseph (Sal) Cacioppo has been at the Ventura Division six months and he likes what he has seen.

Mr. Cacioppo is the Department of Defense's Defense Contract Administration Services (DCAS) representative from the DCAS Production Division.

Unlike other DCAS representatives at Ventura who are from the Quality Assurance Di-

vision and devote most of their time to on-the-line inspection activities, Mr. Cacioppo is concerned with the total production management concepts.

In his role as an industrial specialist he monitors Northrop systems in the Mark 30 and MQM 74A programs "just to be sure efficiency is sustained and production schedules are maintained."

Mr. Cacioppo is pleased with the Ventura Division operation. "The people are excellent and the systems here are beautiful," he says candidly. "You have no

(See CACIOPPO, page 6)



Mr. Cacioppo

from the Quality Assurance Di-

An African Adventure for Mac Pakula

People, places, photography and art are the four main hobbies of Ventura commercial artist Mac Pakula and his wife, Elaine. They combined them all recently on a month-long trip to Africa.

Their sojourn covered seven countries from the Cape of Good Hope to all the way north into Ethiopia. They flew with bush pilots, drove to remote areas with guides and found it "a fascinating experience, more than I expected."

Traveling from the deserts to the plains to the fringes of the jungles and to heights of 9,000 feet in Kenya's mountain area, the Pakulas went off the beaten path "to see the real Africa, not just the tourist attractions."

Throughout the seven-country trip he used a 16 mm. movie camera (and came home with over two hours of footage) and she shot 17 rolls (each with 36 frames) of film with a 35 mm.

slide camera.

The Pakulas joined a group tour flying from Los Angeles to Paris. Following visits in Paris and Johannesburg, South Africa, they left the tour to continue on their own.

In South Africa they also saw Pretoria, Cape-town, the famous Kimberley Diamond Mines and Durban. While making pictures of Africa's southernmost coastal point Mr. Pakula was harrassed by baboons which grabbed at his camera equipment.

Driving northward through remote Zula villages they visited Blantyre in Malawai, the beautiful Victoria Falls of the Zambesi River and Salisbury in Rhodesia.

Then in Kenya they had an opportunity to photograph some Masai, Kikuyu, and other vil-

(See HE FACED, page 6)

Northrop Acquires Interest in New Iranian Aircraft Company

Northrop Corporation has acquired a 49 per cent interest in Iran Air Craft Industries of Tehran. The company is considered to be an important factor in Tehran's bid to become the major jet aircraft service center between Europe and the Far East.

The new company will service, repair and overhaul aircraft and aircraft engines of all types and sizes at an aircraft service installation to be built at Tehran's Mehrabad International Airport.

These facilities, scheduled to be operational by January 1972, are designed to attract military as well as civilian business both domestically and regionally.

Meanwhile, IACI has begun to inspect and repair aircraft of the Imperial Iranian Air Force in hangar facilities provided by the air force.

IACI is a private venture with 51 per cent of the company owned by Iranian nationals. The ultimate intent of the venture is to develop

the capability to build aircraft within the country.

Robert W. Rolfe, formerly of Northrop's Aircraft Division at Hawthorne, is managing director of the new company.

"Upgrading of local skills is a key objective of IACI," Mr. Rolfe said. "In an effort to create the basis for further development of the Iranian aircraft industry, graduates of Iranian technical schools are being utilized and an intensive in-house training program is being organized."

Other Projects

Northrop has a number of other projects in Iran. The company is best known there as the builder of the supersonic F-5 fighters flown by the IIAF. In addition, a Northrop subsidiary, Page Communications Engineers, built and operates Iran's first earth satellite station. Page is one of four members of a multinational consortium now constructing an integrated national telecommunications system for the country. Page also recently was awarded a contract as consulting and supervising engineers for the upgrading and expansion of Mehrabad Airport.

Another Northrop subsidiary, The Hallicrafters Co., is a major supplier of precision radio transmitting and receiving equipment for Iranian defense and law enforcement agencies.



NORTHROP F-5 FIGHTER AIRCRAFT IN IRAN
Northrop has acquired interest in new company to operate from this airport.

Gen. G. S. Brown, Commander, AFSC Briefed on Northrop's AF Programs

General George S. Brown, newly appointed commander of the Air Force Systems Command, was briefed on Northrop contributions to Air Force programs during his first official visit to Space and Missile Systems Organization and the Air Force Contract Management Division.

The Systems Command is the agency charged with research, development, test and evaluation of Air Force aircraft, including the Northrop-built T-38 and F-5.

The Contract Management Division, commanded by Col. Donald G. Nunn, manages contracts for the Air Force, Navy, Army and other government agencies. The division is also charged with the responsibility for the Air

Force Plant Representative program, including the AFPR office at Northrop under Col. Robert Fuqua.

IMPORTANT!

Personnel Administration is again reminding employees of the importance of keeping a current mailing address on file with the company.

Addresses are important at this time of the year when Withholding Exemption Statements (W-2 forms) are due soon. They are also necessary in routing important company information or for use in emergencies. Industrial Relations will provide necessary forms for address changes.



ON FIRST OFFICIAL VISIT
Gen. George S. Brown, left, with Lt. Gen. Sam Phillips, SAMSO.

George Hartman's Rock Collection Has Novel Items

The rocks in rockhound George Hartman's collection aren't just rocks. They range from meteorites to Roman relics to 60-million-year-old fossil fish.

Along with these unusual items he also has several thousand specimens of other rocks he has collected in a lifetime as a lapidary hobbyist.

He began rock collecting as a child in grade school. "I had to walk a mile-and-a-half to school," he recalled. "And I used to pick up rocks along the way. Since then I've kept walking and kept picking up rocks."

Meteorite

The most unusual items in his collection are five pieces of meteorite, remains of a giant fireball that burst over Texas in 1904. One of the pieces weighs six-and-a-half pounds, and the other four are pebble size. He had their outer space origin verified by two experts from the Los Angeles County Museum.

Other unusual items in the collection range from Indian arrowheads from old battlefields to bits of Roman pottery. Another is a fossil fish from the Green River area of Montana. The fish qualifies for a place in a rock collection because the prehistoric bones are embedded in stone.

Mr. Hartman, who is doing sheet metal work on the JIFDATS prototype, Aircraft Division, is a charter member of the NRC Gem and Mineral Club.

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THOMAS V. JONES SPEAKING AT LUNCHEON
Northrop president introduced Gen. John D. Ryan, chief of staff, USAF.

Air Force Chief of Staff Is Luncheon Speaker

General John D. Ryan, chief of staff, U.S. Air Force, was the honored speaker at the 13th Annual Los Angeles Area Chamber of Commerce Aerospace Luncheon Oct. 30, at the Beverly Hilton Hotel attended by over 700 people representing the military, aerospace industry and other major Southern California industries.

General Ryan was introduced by Northrop President Thomas V. Jones. In making the introduction, Mr. Jones said that General Ryan is not only an outstanding military combat leader but also the perfect picture of the modern military executive.

General Ryan spoke on the status of the aerospace industry

and the importance of the industry in the future of the United States.

W. A. Simpson, Jr., president of the Los Angeles Area Chamber of Commerce, was toastmaster and William H. Habblett, Northrop Corporate director of Support Activities, served as general chairman of the aerospace committee.

Military Leaders

The head table included ranking representatives of all the Armed Forces stationed in Southern California. Music was furnished by the 15th USAF band from March Air Force Base, and a joint Armed Forces color guard presented the colors.



CHAMBER OF COMMERCE AEROSPACE LUNCHEON
General John D. Ryan, President Thomas V. Jones, confer.

NORTHROP PAGE BUILDS NEW FACILITY

Groundbreaking ceremonies were held recently for Northrop Page Communications Engineers' new office facilities in Vienna, Va.

Location of the \$6 million complex is in a 31 acre tract which was named the Northrop/Page Industrial Park by the city of Vienna in honor of the first company to buy land in the complex.

Taking Part

Present for the ceremony were Congressman William C. Scott, Mayor James C. Martinelli of Vienna, J. A. Waldschmitt, president of Page Communications Engineers, and James E. Holcombe, vice president, Northrop Corp.

The new Vienna offices will house the entire Washington facilities of Page, including Management, Finance, Materiel, Engin-

earing, Marketing, Industrial Relations, and the Research and Development Directorate. Scheduled completion date is July 1971.

FLEET DISCOUNT

If one of those sleek 1971 automobiles have caught your eye, special arrangements made by Personnel Activities may save you money in adding it to your personal possessions.

All employees are eligible to buy autos, from selected dealers, at Fleet Discount prices. Personnel Activities can provide information. And the Northrop Credit Union will be glad to discuss financing the purchase through a low-cost loan available only to Northrop employees.

Northrop Wages Never-Ending Battle Against Pollution

(Editor's Note: This is the first in a series on Northrop's continuing anti-pollution measures. Dealing with day-to-day plant operations, the series will spotlight each division's environmental control techniques.)

Long before it became fashionable to shout about the pollution of the environment, Northrop Corporation was quietly engaged in a double-edged program: preservation of a balanced ecology and protection for personnel on the job.

Unlike some other industries, aerospace manufacturing techniques do not result in dramatic billows of toxic smoke or endless dumping of greasy sludge into free-flowing waterways.

"If there is such a thing as a 'clean' industry, then aerospace comes closest to it," comments Gene Musk, Aircraft Division plant engineer. But, he adds realistically, "I don't care what you say, anything that you put into the air that wasn't there before is a pollutant."

Obviously it is a matter of degrees that makes the difference. Heavy industry such as Northrop is not totally clean; no manufac-

turing industry is. But Northrop has faced the situation head-on.

When the Los Angeles Air Pollution Control District, several years ago, began rewriting and stiffening anti-pollution measures, it turned to industry for help. Mr. Musk and other members of a special Aerospace Industries Assn. Environmental Committee "spent from \$500,000 to \$1 million" in time and research.

Mr. Musk, who later won a national award for his work in this field, says the resulting regulations were both workable and economical. Customer requirements had to be altered to meet the tougher rules for Southern California manufacturers, "and now the rest of the nation is catching up."

Meeting Standards

The Ventura Division in Newbury Park meets all Ventura County APCD rules, and the Electro-Mechanical Division in Anaheim is complying with Orange County APCD regulations.

Northrop's manufacturing facilities in Southern California are primarily concerned, ecologically speaking, with vapors from paints and boilers and solvents used in degreasing.

"If there are serious problems they lie with the vendors who dispose of our liquid waste materials," explains Mr. Musk. The problems, he emphasizes, are technological.

Goopy toxic sludges are either

taken far out into the ocean and legally dumped or else buried in government-controlled land-fill dumps. "At this time there is nothing else, technologically, that can be done," says Mr. Musk.

He is certain, though, that ultimately government will require dumpers to use other techniques. "And they'll have to pass the costs on to us. It is inevitable."

The same is true for the radioactive materials which are taken from the Northrop Corporate Laboratories as well as some divi-

sions, says Bob Thomas, Northrop health physicist for 12 years. He is concerned with the nuclear radiation environment as well as protection of the employees.

Another man, Leo Vortouni, Northrop's chief industrial hygienist in the Environmental Health and Safety group, is the company's top watchdog for everything from dust to laser beams. He coordinates his work with plant, facilities and safety engineers and safety committees at each division.

"Northrop's concern for the environment and the employee is more than lip service," states H. E. (Ed) Riggins, Corporate vice president of Materiel and Facilities. "The corporation as a whole has been substantially involved and will continue its efforts to upgrade its equipment, processes and environment."

(Next: Environmental activity at the Electronics Division, including a special process that cleans dirty air so well that it is re-circulated in the plant.)



ON A CLEAR DAY THE SOUTHLAND IS BEAUTIFUL
Northrop facilities do nothing to upset ecology balance in areas such as this.

'Scrooge' Tickets Offered by NRC

A new Christmas-oriented motion picture based on Charles Dickens' "Christmas Carol" made its debut recently and NRC has made special arrangements for employees to see it at reduced rates.

The film, "Scrooge," is showing at the Loews Hollywood Theatre. NRC has acquired tickets for the 5:50 p.m. performance Saturday, Dec. 5. Adult tickets, regularly selling for \$3, are available to employees for \$2.55. Children under 12 are admitted for \$1.

Although there are no reserved seats, Northrop ticket holders will be admitted to the theatre before the general public for this performance.

Ski Club Picks Austria's Heidelberg Region for Annual European Trip

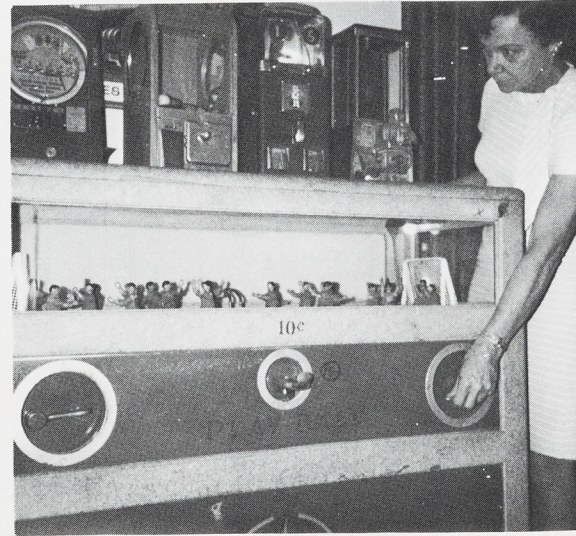
Northrop Recreation Club skiers have chosen the resort of St. Anton in Austria's Heidelberg region as the site for their annual European ski trip, according to Dick Baggett, Electronics Division NRC Ski commissioner.

"St. Anton is an internationally prominent resort that was rediscovered last season by a couple of Northrop skiers. The area has 20 ski lifts and the largest ski school in the world giving it something for skiers of all abilities," Mr. Baggett said.

The club package includes round trip jet flight from Los Angeles to Europe, round trip ground transportation from airport to hotels, seven nights lodg-

ing in first class hotels, breakfast and dinner for seven days, and six days ski lift tickets. Total cost is \$339 per person.

The trip is two weeks long, with the second week free for touring, sightseeing, or additional skiing. Departure is Saturday, Jan. 16, 1971. Additional information, including sign up forms, is available from Mr. Baggett, ext. 542.



'PENNY ARCADE' IN THEIR OWN HOME
Earl Brewster, left, tries ball game; Mrs. Brewster operates soccer game.

TORA! TORA! TORA!

A block of 250 reserved loge seats for the 5 p.m. Nov. 22 showing of the film classic Tora! Tora! at the Hollywood Pantages Theatre has been reserved by NRC for Northrop personnel.

Regular \$3.50 reserved seats are available to employees for only \$3 through Personnel Activities outlets throughout Northrop facilities in the Southland.

MACHINES HAVE IT

Anyone for Music, Poker, Peanuts, Games?

For a penny — and sometimes a nickel — visitors to the home of Northrop's Earl Brewster can have a machine play them a hand of poker, whistle them a tune on a flute or even hand them a bag of hot peanuts, among other things.

And they don't even have to use their own nickels and pennies. Mr. Brewster keeps a saucer of them around for his guests' use.

This is all part of his personal "penny arcade," a unique collection of coin operated machines he has been collecting for the last four years.

His collection includes an old fashioned juke box that flashes colored lights while playing 78 rpm records, a football game where two players can compete against each other, a horse race game, a dispenser of baseball cards and a jelly bean machine.

One of the most unique items is a nickelodeon that is operated by a perforated roll like a player piano. The roll is programmed to operate 12 instruments simultaneously. It presently operates a piano, flutepipes, mandolin, triangle, castanets and tambourine. He is installing a set of drums, and hopes to add other instruments later.

Most of his collection was purchased in very poor condition, completely refurbished and put in working condition. Originally old coin operated machines could be bought very cheaply. Some of Mr. Brewster's early ones were purchased at prices from \$4 to \$8.

However, the last two years has seen a sudden spurt of interest in this unusual hobby and items that formerly cost \$4 now range as high as \$100. Even then they don't work and have to be

repaired.

Mr. Brewster's interest in these types of machines ranges back to his high school days when he worked for a company that made and repaired them. He did not get interested in collecting, however, until four years ago when he found a 1921 pinball machine, one of the first manufactured, in his uncle's basement. This got him started.

The machine, called "English," was played by trying to roll small pool balls into holes of corresponding colors. It was not a success because there was no payoff and limited action.

Particularly interesting items in his collection are several machines made during the 1930's to circumvent gambling laws. When you dropped your nickel, penny or quarter in the slot, you got a gumball. But also numbers appeared in a window. If they were the right numbers you got a payoff from the attendant.

Another odd machine was designed to catch loose change from patrons of cigar stores. You drop in your penny. If you won, you got as many as five more cigars. If you lost, the dealer did okay.

While all of Mr. Brewster's machines are in working order, he reports that many are no longer economical. For example, his hot peanut dispenser requires a nickel in the slot. Since it was built 50 years ago, it dispenses about 15 cents worth of nuts for each nickel put in.

In keeping with the spirit of his older items, Mr. Brewster has fitted up a den in his house with Gay Nineties decorations.



WITH SOME OF HIS PRIZE-WINNING PIGEONS
Ventura's Dave Moore displays a champion hen as birds circle his loft at left.

ON LONG FLIGHT HOME

The Homing Pigeon Meets Many Foes

If you think Dave Moore is going to the birds, you're right—at least as far as his hobby is concerned.

Mr. Moore, an electronic test inspector for 12 years at the Ventura Division, raises and races homing pigeons in organized competition.

Of the 40 pigeons in the loft of his Thousand Oaks home his favorite is an old hen that won a race with several hundred other birds from Lapine, Ore. to Thousand Oaks. That's 700 miles.

He also has trophies for his young birds, or yearlings, for their over-all performance in races beginning from Delano all the way north, as far as 373 miles, to Marysville.

His team of yearlings averaged 1,200 yards per minute, nearly 41 miles per hour. "With a strong tail wind they'll go up to 1,600 yards per minute or over 50 mph," explains Mr. Moore.

Mr. Moore has had pigeons all his life, beginning as a child in his native Barbados, West Indies.

He has been in organized pigeon racing since 1952.

The history of racing pigeons dates back to the Roman Legions, Mr. Moore said. "The Romans didn't know why the pigeons always came home and it's still not clear today."

When the birds are three months old he takes them 5-10 miles away from their loft for their "first toss" or training exercise. Gradually he takes them further away until they enter their first race from Delano, 109 miles north.

Based on Averages

Since all of the birds are based at different lofts (there are 18 lofts represented, for example, in the Thousand Oaks Racing Pigeon Club) average speeds are used to determine the winners.

The birds will return home, generally speaking, from any direction but most of the local races follow Highway 99 up the San Joaquin Valley for uniformity and ease of the men.

The racers stay in a loose

flock as they wing home some 50 to 100 feet above the ground. But they must climb to 6,000 feet to cross the Tehachapi Mountains and enter Southern California.

Sometimes they don't all come home. Effects of crop dusting may down the birds or occasionally a hawk will grab one in mid-flight. Hunters often mistake them for doves. High winds will blow them into utility wires and radar will confuse their sense of direction.

The birds don't fly at night, Mr. Moore went on. They'll seek a place to light at dusk and sometimes become the victim of a hungry owl. An owl's nest in the Tehachapis once revealed 125 leg bands from racing pigeons.

On the recent weekend of the big Southern California fire the racers delayed their event until Sunday evening when it appeared the fires were controlled. But of the eight birds released by Mr. Moore only two came home.

Racing Enoch Family Does A Switcheroo As Pit Crew

In 1956 12-year-old Gary Enoch was a pit crewman for his father, Northrop's C. K. Enoch who was racing a modified Crosley built by another Northrop man, Don Miller. Today there has been a switch and it is Mr. Enoch who is the pit crewman for Gary who drove a Volkswagen-powered racer he built from a kit to the 1970 Southern California Area National Championship for Formula Vee.

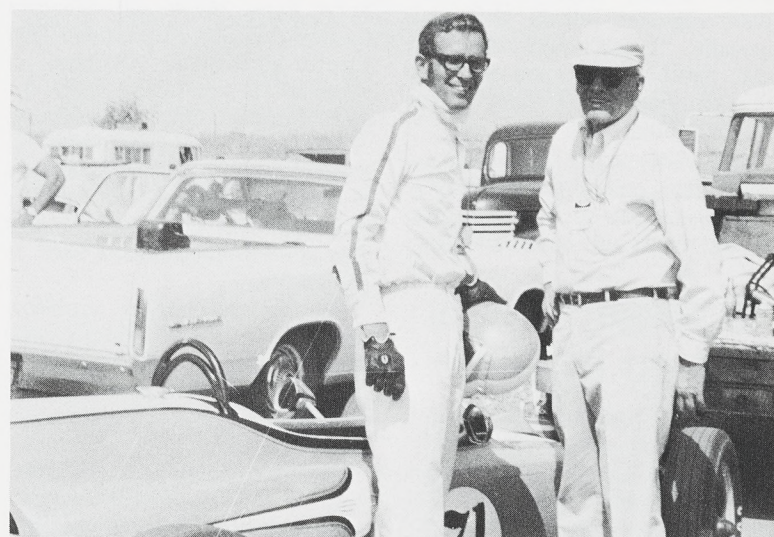
Gary won the title at the first National Road Race held at the new Ontario Motor Speedway on Sept. 18, 19 and 20.

The young man got his initial interest in sports cars when his father bought a Singer automobile in 1953. Later, he became a member of the Northrop Sports Car Club with his father, and in 1959 was the events master for

the Northrop Sports Car Club Gymkhana.

Gary began racing seriously a year ago and during 1970 participated in seven national races, winning four firsts, two seconds and one third. Winning the Southern Pacific Area National Championship qualifies Gary for a starting position in the American Road Race of Champions, set for Nov. 28 and 29 at Road Atlanta, Gainesville, Ga.

Mr. Enoch will accompany Gary to the race as pit chief. Asked how he felt about the reversal of roles since 1956, Mr. Enoch, who is executive assistant to the manager of Manufacturing Engineering, Aircraft Division, said, "I think it is easier on the nerves to be out there racing. When the race gets tight, I wish I could trade places with him."



THEN AND NOW
Gary, left, and C. K. Enoch pause before a race driven by the former with the latter as a pit crewman, above. At right is a 1956 scene in which 12-year-old Gary checks car driven by Mr. Enoch as Doug Hugill, right, confers.



WE ASKED THEM—What Do You Think of Daylight Saving Time?



Bonnie Bender, technical illustrator, Ventura:

I wish they'd keep it all year around. I enjoy the later light and there's more time for yardwork and things like that.

Charles Gimber, heat treater, Electro-Mechanical:

I have very definite ideas on that. I'd like to keep daylight saving time the year around. In the winter it is dark when you get up anyway and then dark when you get home. Daylight saving in winter would give us a little more light in the evenings.



R. E. (Bill) Schultz, material adjustment coordinator, Ventura:

I don't like going back to standard time. It cuts into my yardwork. I like to do my work around the house during the week so I have weekends free. When daylight saving ends so do my free weekends.

Naomi Stuart, secretary, Electro-Mechanical:

I really like it. I can use the daylight better in the evenings than I can in the mornings. This way I can get my yardwork done during the extra daylight time.



Betty Rockey, receptionist, Aircraft:

I prefer daylight saving time the year around. In the spring and summer it is nicer to have the daylight hours after work than in the morning while driving to work. But to me, to change the time back and forth is confusing, costly and colossal nonsense.



Paul Adams, manufacturing research engineer, Aircraft:

I like daylight saving time. I like changing each April and October to get the extra hour of daylight in the summer evenings.



Lambert Lightenberg, administrative associate, Electronics:

I like the change. The sun goes down early now and I get to take it easy when I get home. In the summer, I had to spend my evenings doing yardwork.

Emile Nobile, secretary, Electronics:

I always come and go by the clock so it doesn't affect me one way or the other.



Former Employee Earns Medal for Vietnam Heroism

A former Aircraft Division employee, Army PFC Wieland C. "Willy" Norris, has been awarded the Bronze Star Medal with "V" device posthumously for heroic action in Vietnam.

PFC Norris, a Graphic Service employee, NRC commissioner, organizer and instructor in NRC-sponsored Karate classes, lost his life in June 1970 in the action for which he was cited.

Assigned as an assistant machine gunner in Company A, 2nd Battalion, 506th Infantry, 101st Airborne Division, PFC Norris volunteered to take a point position in his platoon to inspect an enemy area. He noted an enemy ambush and shouted warning to his comrades, thereby exposing himself to enemy fire.

PFC Norris had previously earned a second Bronze Star Medal for action in Vietnam. He entered the U.S. Army in late 1969 and went overseas in early 1970. His aunt, Grace Masilones, is an Aircraft Division Quality Control employee.



PFC Norris

Classified

Classified ad service is provided free of charge to all Northrop personnel. Ads for agencies, commercial enterprises and private businesses are not accepted. The Northrop News reserves the right to edit or omit ads. Obtain ad form C67 from organization clerk and mail ad to Northrop News, 170, zone 62. Ads are limited to one item and one ad per person each issue. Deadline is noon Wednesday, one week before publication.

Automobiles For Sale

- Comet, 1962, 36,000 mi., \$150. 213-675-6895. A
- Ford, 1963 Falcon, 6-cyl., stick, 48,000 mi., \$395. 213-675-8904. A
- Rambler, 1964 Ambassador, 4-dr., V-8, auto., a/c, new tires & brakes, \$550. 213-378-1749.
- Chevelle, 1966 327 Malibu, auto., a/c, p/s, console, \$1,250. 213-377-7081. A
- Rambler, 1967 Classic, 4-dr., new tires, \$250. 213-635-3127. A
- Ford, 1961 convt., 3-spd. stick, \$225. 213-672-2527. A
- Chevrolet, 1941 club coupe, \$195. 213-322-5503. A
- Toronado, 1970, 5,000 miles, AM-FM stereo, a/c, \$5,500. 213-329-2842. A
- Station Wagon, 1963 Oldsmobile Dynamic 88, a/c, cruise control, p/b, p/s, \$650. 714-523-4189. A
- Triumph, 1968 GT6, wire whls., r/h, \$1,595. 213-374-7416. A
- Pontiac, 1966 LeMans, \$1,000; Pontiac, 1968, Grand Prix, \$1,795; Datsun, 1969, \$1,435 all minimum bids, Credit Union ext. 1117.
- Corvette, 1964, auto., p/s, p/b, a/c, rebilt. eng., \$1,500. 213-532-0335. A
- Camaro, 1968, V-8, p/s, \$1,800. 213-675-9068. A
- Station Wagon, 1957 Chev., V-8, 265 cu. in., 2-bbl. 4-spd. Muncie, 11" clutch, tape, reverb, \$300. 213-675-1354. A
- Dune Buggy, 1969 VW pwr'd., 1500 cc eng., fiberglass body, doors, roll bar, top, street legal, \$975. 213-396-6739. A
- Lotus, 1967 Europa, 25,000 miles, \$2,800. 213-373-3196. A
- Chevrolet, 1957 Nomad, all new uphol. & paint, less than 1,000 mi. on rebilt. eng., \$795. 213-644-7514. A
- Station Wagon, 1959 Dodge, for parts, rebilt. trans. w/5,000 mi., \$75. 213-421-9949. A
- AMX, 1969, low mileage, warranty, 4-spd., take over \$91.55 mo. pymts. or \$2,150. 213-372-4164. A
- Truck, 1962 Ford, long bed, small V-8, \$825. 213-831-4586. A
- Corvair, 1963 Monza, \$100. 213-679-1631. A
- Austin Healey, 1965 MK III sport roadster, deluxe 3000, \$1,550. 213-372-1504, 213-545-1325. A
- Ford, 1964 Fairlane 500, auto. trans., p/s, V-8, 2-dr. h/top, r/h, power d/brakes, \$500. 213-279-3145. A
- Corvette, 1966, a/c, AM-FM radio, auto. trans., \$1,900. 213-542-3915. A
- Plymouth, 1965 2-dr., Fury, high performance eng., h/d 4-spd. trans., \$900. 213-638-9076.

Household Items For Sale

- Chair, brown upholstered, \$17.50. 213-644-3922. B
- Wine Glasses, 11 crystal stem, wide gold band at top & base, \$55. 213-674-6076. B
- Dining Table, round, walnut veneer, w/6 chairs & custom designed ceramic living rm. table lamp, \$100. 213-644-7647. B
- Sewing Machine, 1969 Model 65 straight-stitch White, w/cabinet, \$110. 213-869-4813.
- Couch, 8' silk ara, matching Mr. & Mrs. chairs, dk. beige, \$299. 714-535-7454. B
- Rug, 12x15 nylon, beige, \$30. 213-677-9498.
- Martini Set, 10 pcs., incl. pitcher & stirrer, red & white trim, \$6.50, other items. 213-474-5726. B
- Coffee Table, maple, French motif, 44"x21"x17", \$15. 213-378-6824. B
- Mangle, Ironrite, open on both ends, con-tour chair, \$150. Box 2201. B
- Dishwasher, Hotpoint Delux Porta, \$85. 213-863-3900. B
- Living Room Set, \$125. 213-379-4774. B

Miscellaneous For Sale

- Motorcycle, Kawasaki Centurian, 100 cc, w/ extras, \$475. 213-675-7915. C
- Mini Bike, 1970, Briggs & Stratton 3 h.p. eng., \$75. 714-962-4134. C
- Motorcycle, Montessa 250, all extras, \$550. 213-645-3592. C
- Acreage, 1/2-acre, near Norco in Riverside County, 30 mins. from downtown Anaheim, pay equity & take over pymts. on 6.6% loan w/good credit, \$5,995. 714-774-8251. C
- Tape Player, Panasonic, 8-track, stereo for auto, w/11 tapes, \$50. 213-545-6719. C
- Motorcycle, 1969 Yamaha, 250 Enduro, 5,400 mi., \$575. 213-632-2642. C
- Tires, 4 Delta high floatation sand-type, for 15" wheels, \$50. 213-860-2305. C
- Motorcycle, 1958 BMW 250 cc, w/steib side car, \$800. 213-454-5985. C
- Motorcycle, 1970 Honda 350 cc, many extras, used 4 mos., \$680. 213-675-9659. C
- Bird Cages, floor & table models, \$3 & \$8. 213-372-3827. C

Miscellaneous For Sale

- Mobile Home, 1967 Universal, 56'x12', 1-bdrm., adult park, Torrance area, \$5,500. 213-830-8230. C
- Motorcycle, 1968 Builaco Lobita AK scrambler, \$350. 213-833-7306. C
- Seats, 2 single, to evening Elvis Presley performance, Forum, Sat., Nov. 14, \$7.50 ea. 213-374-2135. C
- Boat, 1969 Glasspar 15' Avalon w/75 h.p. Evinrude & 3 h.p. Evinrude for trolling, American big-whl. trailer w/dolly & spare, all C.G. equip., take over \$58.55 mo. pymts., \$1,200. 213-327-2126. C
- Record Player & radio combination, hi fi, in blond cabinet, \$10. 213-834-0586. C
- Engine, 1964 Chev., 6 cyl. trunk, complete w/trans., \$150. 213-671-1966. C
- Motorcycle, 1969 Sears, 125 cc, spare parts & tools inc., \$265. 213-325-3675. C
- Mobile Home, Royal Lancer, 20x57, 2-bdrm., 2 baths, dps., cpts., bltins, utility shed, \$12,000. 213-329-0761. C
- Outboard Motor, 2 h.p., \$25. 213-671-1660. C
- Travel Trailer, 1968, Aristocrat Land Liner, 8'x20', self-contained, extras, \$2,200. 213-835-6721. C
- Bed Unit for VW bus, \$75. 213-671-6240. C
- Cyclo-Massage, Niagara, deluxe dble. model & case, \$375. 213-372-4574. C
- Acreage, 5 acres, Antelope Valley, near paved road, \$400 dn., \$6,000. 213-378-1026. C
- Ranch, 3-bdrm., lge. family rm., pool, 2-level barn tackroom & 3-stall stable, 1.6 acre, Rolling Hills, \$89,900. 213-377-3487. C
- Skis, 200 cm, w/salomon step-in bindings, \$35. 213-346-6625. C
- Sailboat, Chrysler Barracuda 13, marconi rig, w/custom-fitted trailer, \$640. 805-495-2937.
- Radiator Grill, new, chrome plated, for 1940 Ford, \$15. 213-375-0915. C
- Auto Parts for Austin Healey Sprite, \$2 & up. 213-785-1405. C
- Trailer Hitch, Draw-Tite, fits 1968-1970 Buick sports wagon, Olds Vista Cruiser, Tempest or Chevelle wagons, \$10. 714-528-8582. C
- Organ, Conn, electric, 2 full keyboards, full pedals, \$800. 714-524-2128. C
- Boat, aluminum, 12' cartop, 12 h.p. motor, remote 6-gal. gas tank, cartop loader & carrier, \$225. 213-324-1593. C
- Recorder, Viscount, \$25. 213-325-4611. C
- Stereo, Heathkit SD-1 w/phono, FM & FM multiplexer, cabinets & spkrs., \$160. 213-846-5589. C
- Hub Caps, 5, for Ford, \$10. 213-376-4831. C
- Go-Cart, McCulloch racing frame, 3 h.p. Briggs & Stratton eng., \$150. 213-377-7194.
- Motorcycle, 1967 Honda Trail 90, low mileage, \$185. 213-347-5220. C
- Accordion, 120 bass Universal, \$175. 213-324-5867. C
- Pups, cocker spaniel, AKC, champ. sired, black, 3 mos. old, shots, \$100. 213-379-1049. C
- Stroller, seldom used, \$20. 213-375-1901. C
- Transportation Box, airline approved, for cat or small dog, \$7.50. 213-377-3806. C
- Mobile Home, 1969 Golden West, 12'x57', front kitchen, 1-bdrm., awning, skirts & storage shed, adult park, Torrance/Carson area, \$7,200. 213-328-5073. C
- Uniform, Camp Fire Girl, vest, extra tie & slide, worn twice, size 8-10, handbook, \$6. 213-423-4345. C
- Camera, 35mm, Konica C-35 black body, \$55. 714-962-1143. C
- Motorcycle, 1964 250 cc Honda scrambler, \$250. 213-641-5159. C
- Camper, 1963 Tropicana, 8' cabover model, sleeps 5, ice box & butane Magic Chef range, \$675. 213-328-1520. C
- Boat Trailer, lge. wheel, Wallstrong 16' V frame, winch, 600x13 tires, fenders, 1 yr. old, \$180. 213-377-5853. C
- Stereo, Magnavox AM-FM, in lt. Mediter. style, \$100. 213-378-5478. C

Wanted to Buy

- Slide Rule, 12", w/leather case, log/log duplex decitrig scales. 213-242-9723. D
- Books, Little House, by Laura Wilder. 213-378-4994. D
- Drafting Machine. 213-675-2677. D
- Woodworking Equipment, stand alone or at-tachments for Shopsmith Mark V. 714-527-1946. D
- File Cabinet, used, 2 or 4 drwr. 213-374-7165. D
- Clothes Dryer, gas. 213-676-8833. D

For Trade

- Organ, El Chord, trade for portable colored TV. 213-675-6020. E

Free (To Be Given Away)

- Dog, female terrier, 1-yr. old. 213-641-4466.
- Dog, miniature Dachshund, female, 1 yr. old. 213-755-3104. F

Rentals Offered

- Cabin, Moonridge, Big Bear Lake, 3-bdrm., 2 baths, f/place, completely furn., family only, \$125 wk., \$50 w/end. 213-326-7232. G
- Apt, 3-bdrm., newly redecorated, 2 baths, bltins, dps., cpts., f/place, lge. sundeck, closed gar., children OK, near Northrop, \$225. 213-644-3654, 213-675-7938. G
- Apt, ocean front, 1-bdrm., furn., cpts., dps., utilities paid, \$180 mo. 213-823-5526. G
- Apt, owner's 2-bdrm., upstairs, 2 entrances, new cpts., dps. & paint, extra gar. avail., lanai, adults only, near Northrop, \$160 mo. 213-756-3669. G

SECRETARY TO 3,483

Nancy Peterson Has A 'Football Family'

Nancy Peterson is secretary to only three men at Northrop, but when she goes home in the evening she becomes secretary to 3,483 young men.

Mrs. Peterson, who is with Boeing Quality Control and Engineering representatives, also doubles as secretary for the South Bay Junior All-American Football Conference. Her work with the conference includes keeping minutes, doing regular secretarial work, checking birth certificates to insure eligibility, checking weights, arranging banquets, playing schedules, opening dates and assignments of officials.

The work encompasses working with boys from 13 communities, Torrance, Carson, Gardena, Hawthorne, Inglewood, Lawndale, Lomita, Manhattan Beach, Palos Verdes, Redondo Beach, Rolling Hills, San Pedro and Wilmington.

Year After Year

She began working with the boys six years ago, when she and her husband, Ken Peterson of Aircraft Division's Sheet Metal Maintenance, joined the then Pop Warner Junior Football League. Shortly after she became secretary and when the league grew into the present Junior All-American Conference, she continued to be elected secretary. She is completing her fourth year and has been nominated for her fifth year.

Rides and Riders

Rides Wanted

7:30 a.m. — 4:12 p.m.

San Diego Fwy. & El Toro Rd., Lake Forest. Bonnie B. Beck, Aircraft ext. 1471, 714-837-5345.

8 a.m. — 4:42 p.m.

Painter Ave., Whittier Blvd., Colima Rd., Whittier. C. Rosenkranz, Aircraft ext. 1020, 213-696-3467.

Venice & Sepulveda-Culver City or Mar Vista Area, Culver City. Hal Samuelson, Elec. Haw. ext. 622, 213-839-8954.

Lakewood & Imperial Blvd., Downey. Morris Brown, Aircraft ext. 4487, 213-861-8508.

Springdale & Westminster, Huntington Beach. Paul Eckroth, Aircraft ext. 1466, 1477, 714-846-1858.

Rides Offered

8 a.m. — 4:42 p.m.

Painter Ave., Whittier Blvd., Colima Rd., Whittier. C. Rosenkranz, Aircraft ext. 1020, 213-696-3467.

Venice & Sepulveda-Culver City or Mar Vista Area, Culver City. Hal Samuelson, Elec. Haw. ext. 622, 213-839-8954.

Springdale & Westminster, Huntington Beach. Paul Eckroth, Aircraft ext. 1466, 1477, 714-846-1858.

Rentals Offered

Vacation Cabins, Idylwild, 1 & 2 bdrms., stream, patio, f/place, \$30-\$40 w/end, \$70-\$90 wk. 213-868-8040. G

Room, kitchen privileges, 2 baths, near San Diego & Harbor Fwys., \$65 mo. 213-830-6956. G

Apt, 1-bdrm., unfurn., within walking distance of Northrop, \$95. 213-675-2305. G

Personals

Thank you to all my friends at Northrop for the beautiful plant & all the get-well wishes during my recent illness. EVELYN HUNTER. L

Thank you to all our wonderful friends at Northrop for the help & kindness expressed at the loss of our husband & father, Joe (Espie) Honea. ALMA, LEE & ESTHER HONEA.

Steve & I wish to express our sincere thanks to the many Northrop employees who extended their sympathy in the loss of my beloved wife, Marion. BILL HAYMAN. L

To our many friends at Northrop, Dorothy & I want to express our appreciation for their generous gift & will be ever grateful for their help. CLARENCE L. BUSH. L

Minor Alterations & ironing, my home, reasonable. 213-673-2332. L

I want to thank all my friends at Northrop for the flowers & expressions of sympathy in the passing of my brother. LEE DAVIS. L

I would like to express my sincere thanks to all my friends who made my retirement party a wonderful memory. C. B. JOHNSTON.

For Sale or Trade

Playpen, wooden-type, \$5 or trade for child's record player, &/or records. 213-676-3050. M

Serving the young football players—ages 8-14—is a family affair for the Petersons. Today, besides Mrs. Peterson's secretarial work, her husband manages the Lawndale Buccaneers, her 14-year-old son Buddy is a star player, her 12-year-old daughter Barbara is a cheerleader, and her older daughter Pam is a former cheerleader.

"We are just one Northrop family involved in junior football," she pointed out. "In our conference we have 108 teams representing the 13 communities, and at one time I counted more than 500 Northrop people and their children who were involved."

Although football season only extends for three months, her work is a year-around job.



NANCY PETERSON AND HER FAMILY
Ken, Buddy, Pam, Barbara and Nancy lead a full life.

EDITOR'S NOTEBOOK

Whether you call it as women's lib or a fashion revolt, the fact remains that Northrop women are beginning to assert themselves more and more when it comes to dress.

First it was eight Ventura Division women who came to work one day wearing the midi and maxi-length skirts. That was one blow for the Northrop girl-watchers who have become spoiled by the miniskirt.

Now the ladies of Northrop Corporate Laboratories have struck another blow for independence. They, too, contrived their plan in a clandestine conspiracy aimed at surprising the men.

Hoping not to upset any scientific apple carts, the ladies called on Mary Pass, secretary to Dr. Walter Crandall, Northrop Corporate Laboratories vice president and manager, to get his approval of their plans. Not wanting to be a spoilsport, he agreed to the one-day experimental scheme.

Well, some would say fittingly, the day before Halloween, 14 of the 22 ladies came in sporting pantsuits. The daring ladies were Miss Pass, Margo Wilson, Cathy Freckleton, Carol Ankeny, Ivy Pocock, Mae Wood, Helen Kramb, Barbara Jones, Pat Smittle, Deloris Davis, Linda Barnes, Joan Woods, Edith Knight and Ena Smalley.

And the response was rewarding. "You can wear a potato sack for all I care, as long as you do your work," quipped Dr. Donavon Pretzer. "It's good for a change but I wouldn't want it to last," said Dale Milligan.

Tu Chen said he was glad to see the change, too, but he still favors the mini. "Definitely not the maxi," he added with a smile. Bruce Charlan also liked the variety.

"It's getting to be a problem," said Mrs. Wilson in describing the plight of the working girl who wants to remain stylish. "We're tired of the mini but can't stand the midi. There's nothing to buy." Almost. Pantsuits provide a partial answer.

Miss Pass, wearing a pimiento outfit with white trim, agrees with Mrs. Wilson. "We definitely won't wear them all the time but they do offer variety." The editor also found them flattering.

At least two of the non-pantsuiters of the day, Margaret French, a Technical Analysis secretary, and Ethel Reger, who works in the NCL library, said they would have worn them if they could have found an outfit they liked.

An Englishman, Dr. Peter B. S. Lissaman, plans to keep the controversy alive. "One day all the men will reciprocate by wearing kilts," he joked.

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He Faced A Hard-Charging Rhino—And Filmed It All

(Continued from page 1)

lages as they traveled between the cities of Amboseli, Nyeri and Nairobi.

Kenya and Tanzania, where they flew to the Ngorongoro game preserve, provided some of the best wild animal footage. And some close scrapes, too.

A confrontation with a big rhinoceros was probably the most hair-raising incident.

Alighting from the bush vehicle, Mr. Pakula set-up his tri-

pod and camera some 50 yards from an old, tough rhino. Then he hollered to attract its attention and create some action for the film.

The wood-be movie star didn't like the idea. His idea of action was to charge the cameraman.

"Just at the point when I was about to turn and run I realized that I was filming a huge cloud of dust—I couldn't see the rhino anymore. He had stopped short, putting on the brakes and

kicking up the dust. He sort of ambled off, almost as if he'd forgotten why he was charging."

Mr. Pakula said, "I was interested in the people and the wildlife and I wasn't disappointed."

Visiting isolated villages that seemed forgotten, he met and photographed the people. "It was incredible. It was almost like being in an old movie about Africa," he recalls.

Moving About

Heading north after visiting the area at the foot of 19,565-foot Mt. Kilimanjaro, the Pakulas entered Uganda and saw Kampala, Entebbe and Murchison Falls on the Nile River. There they hired a boat and went north, photographing hippos, crocodiles, and numerous other wild life.

In Ethiopia a friend in embassy service set up a tour of the royal palace and a meeting with Emperor Haile Selassie. Although the emperor was called away with the death of Egypt's Nasser, the Pakulas were given a full tour of the grounds.

For Men Only

In a nearby small hamlet of Axmus they were permitted to view the crown jewels of Ethiopia's kings for the last 10 centuries. "Except they wouldn't let my wife in," Mr. Pakula said.

"No women are allowed because of religious (Moslem) reasons."

Turning south they chartered a plane with a game warden at the controls and photographed the wildlife again. They were able to watch lions stalk and kill a wildebeest and a zebra.

When they returned from their trip of approximately 20,000 miles they had film of "everything from ostriches to elephants; near-primitive people and beautiful, modern cities."

An anthropology buff, Mr. Pakula compared the huts with similar ones he had seen in the back country of Hawaii. He also noted comparisons between certain African ritual facilities and similar facilities in old Pueblo Indian sites he has visited in the Southwest United States.

Is he going back to Africa? "Maybe someday, but our next trip is going to be to South America. The South American Indians are fascinating . . ."



HERE'S HOW IT WORKS

Mac Pakula showed villagers how camera worked, then filmed them.



AT THE FAMOUS MURCHISON FALLS

Mr. Pakula films fast-flowing Nile River in northeast Africa.

They Handle 'Em All

VARIETY KEEPS VENTURA OPERATORS ON TOES

As the unofficial public relations ladies for the Ventura Division, the telephone operators always put the company's best image forward. Sometimes it gets a little trying.

One day, for example, three or four helicopters were flying at low levels over Newbury Park. For some reason many people thought they were Northrop aircraft.

"Why are you people flying those helicopters over our houses?", demanded an irate caller on behalf of her neighbors. "I want to talk to the general manager of your plant and see that this comes to a stop," said the caller.

Northrop operators Verni Bloom, Marge Shroeder and Agnes Wood had to gently assure

the callers that the clattery aircraft weren't Northrop's.

Another time the telephone rang early in the morning with an outside call. "I'd like to talk to (a department number)," said the caller. When asked what person the caller wanted to speak to in that department, the caller said, "I don't know but he's in Manufacturing and I'm sick."

Others will call up and, upon being greeted by the "Northrop Corporation" answer of the operator, will say simply, "I want to talk to my husband." Or something like "let me speak to Mary."

An employee will make an in-plant call and find no answer. "Isn't Kathy on extension 487 anymore?" they ask the operator after failing to get an answer.

"Yes," the operator says. "Then why doesn't she answer the phone?"

Knowing what to say on the telephone is one thing; knowing how the company telephone system operates is another.

Who's Mistake?

For instance, a person will make an outside call and then attempt to transfer that call from his Northrop line to another in the plant. Usually the result is cutting off the call. Angered that his call has been disconnected he calls up the operator and berates her for it. She must patiently explain that it's his fault, not hers, for the disconnection.

Operators are kept on their toes by the variety of different calls. And they learn a lot about human nature.

Impossible Questions

A good example of this is the person who calls from outside the plant and asks for a certain extension. When told the line is busy, the caller asks the operator, "How long are they going to talk?"

Eavesdropping is not part of their job and neither is knowing how long people are going to talk. But patience, skill and the ability to handle and place calls across the nation and around the world is their responsibility and they carry it well.

COMMITTEE

(Continued from page 1)

cial Materials and Devices Safety Committee.

His fellow committeemen include Bob Baltz, Ansel Gough, Earl Morris, Joe Pulver and Mr. Steman.

Personnel with questions concerning safety are urged to contact either their supervisors or members of the committee which is involved with their specific work area.

Conger, Wolfe Tie for Third In League Batting Averages

Two Ventura Division softball players tied for third place in over-all Conejo Recreation and Park District B League hitting competition, according to final tabulations.

Batting a hot .467 were short-stop Dean Wolfe with 21 hits in 45 at bats and first baseman Ken Conger, 14 hits in 30 official tries at the plate.

Burroughs, the team that nudged Northrop out of first place in the final won-lost figures, had three men in the list of top 10 hitters and all were below the Northrop duo of Wolfe and Conger.

Gene Linhart was another big man with the stick for Ventura, going 9-for-22 for a .409 average. Tom Leichtfuss was next with .368 He had the most at bats, 58.

Following, in order for Northrop, were Bill Higginbotham, .353; Junior Salas, .350; Dave Standford, .341; Chuck Brune, .313; and Dan Cleland, .250.

On down the list are Ed Ray, .243; Claude Vincelette, .235; Cliff

Jarvis, .240; Tom Pappas, .200; Ralph Reeves, .195; Dave Coe, .179; and Pat Cloward, two hits in 15 at bats, .133.

CACIOPPO

(Continued from page 1)

apparent manufacturing problems here."

Northrop's federal contracts aren't his only interest, however. Headquartered in Room E-112A at the Ventura Division he keeps an eye on nine other Conejo Valley plants.

While keeping track of the DCAS contractual obligations with all 10 of these firms he is also called upon by the government to investigate and examine the background and capability of firms which may receive federal contracts.

Mr. Cacioppo brings 30 years of manufacturing experience to his job. He began as an aircraft machinist and has worked in the aircraft and chemical fields as well as with all major branches of the armed services.

On The Job . . .



PHIL TADLOCK is a crater in the Shipping department at Ventura. He has been on this job a year after six months in Timekeeping. Before joining Northrop he was in the Army in Vietnam.



ADMIRING THEIR TROPHY

Softballers Claude Vincelette, Ralph Reeves, Ken Conger, Dean Wolfe.

NORTHROP NEWS

VENTURA DIVISION EDITION

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She Really Cleans Up With Idea

If Ventura Division women in Production Operations look a little sharper than usual in their white smocks you can ask them which detergent they use. Ask Catalina Campos of Plastics Lamination first.

She recently received a \$270 check for suggesting that personnel be issued two smocks on a permanent basis with the employee personally responsible for keeping them clean.

Thus, instead of each person being able to draw a clean smock daily from the tool crib, each takes care of their own.

"The smocks used to come back from the laundry service very clean," Mrs. Campos explained, "except sometimes they would be stained. Some of the people didn't like the idea of wearing a smock that wasn't their own. So finally I just suggested that everyone take care of their own and it was accepted."

Another suggester, Gene LaCross, received \$112 for his idea in 747 shipping which resulted in doing a better job while saving money in time and materials.

Mr. LaCross suggested a new holding bracket for the Boeing 747 shipping frame which would eliminate hand-winding of holding material and replace it with a metal brace.

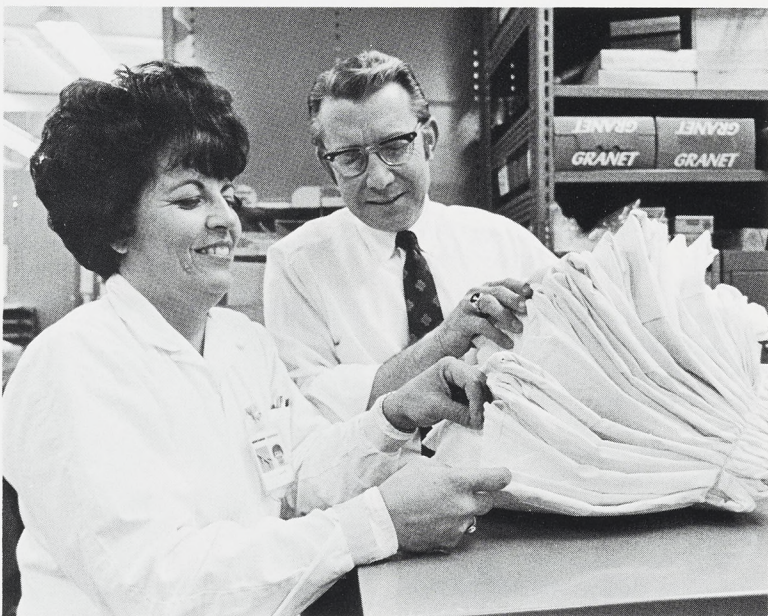


Mr. LaCross

Northrop, NR End Transfer Talks

Northrop Corporation and North American Rockwell (NR) announced that they have discontinued discussions looking toward the possible transfer of NR's Columbus (Ohio) division operations to Northrop.

Preliminary discussions concerning the possible transfer were initiated about a month ago (Northrop News, Oct. 28).



LOOK AT WHAT WAS SAVED
Suggester Catalina Campos and Tool Crib smock-dispenser Chuck McCormick.

TWO VISITORS FROM EUROPE Greek General, Wife Inspect Facilities Swedish Officer Sees Special Test

Visiting the Ventura Division and other Northrop facilities recently was Hellenic Army Maj. Gen. A.J. Lagarias, commander of the NATO Missile Firing Range on Crete. Mrs. Lagarias accompanied the general.

The Greek general met with General Manager Welko E. Gasich and other division officers before touring the Ventura plant. He familiarized himself with manufacturing techniques and capabilities connected with the MQM-74A (or Chukar) drone.

The Chukar, as it is referred to internationally, will be utilized by NATO teams in missile target exercises at NAMFI. Ventura will provide a technical assistance team as well as the target drones.

During his week-long stay in Southern California the general also met Northrop President Thomas V. Jones and was given a tour of the Aircraft Division and Northrop Corporate Laboratories.

Another highlight of his visit was luncheon with U.S. Air Force Gen. (ret.) Sam Eaton. Gen. Eaton was head of the U.S. mission in Greece for three years and welcomed the opportunity to renew his acquaintance with Gen. Lagarias.

"The visit provided a good chance for Gen. Lagarias to meet the management and see, firsthand, the people who produce the Chukar for the NAMFI range," explained Ralph Friesen, program manager.

It was the first time Mrs. Lagarias had been to the United States. She and Gen. Lagarias also saw several prominent Southern California attractions.



GREEKS ALSO LOOKED AT APOLLO MATERIAL

From left, Gen. Lagarias, John Evans, Stiles Burke, Mrs. Lagarias and Don Conlan in Paralab.

International Fighter Work is Beginning

Northrop Corporation will begin work immediately on its new International Fighter Aircraft (IFA) contract. Selection of the Northrop F-5-21 as the IFA after a vigorous industry-wide competition was announced at the Pentagon last Friday afternoon.

Announcement that Northrop had won the competition was made by Air Force Secretary

Robert C. Seamans, Jr.

Work began Monday at the Aircraft Division on the new program as Engineering, Manufacturing Planning and Tooling personnel lost no time in moving ahead on the program.

Initial funding of \$21 million has been authorized for the program. The program covers 325 (See F-5-21, Page 6)

Evans on Management

In his first meeting with first line supervision since he was appointed vice president of Production Operations at the Ventura

Division, John E. Evans outlined his philosophies of management.

Mr. Evans, invited to address the supervisors in a final session of their weekly seminars, touched several bases in the 90-minute get-together:

On the responsibility of managers — "Organize and apply your resources, both human and physical, in the most efficient manner possible. Your job is to get things done through other people."

On utilizing personnel — "Evaluate each person's abilities and find them a job to match their skill."

On employee relations — "Be honest with the employee about his performance, potential and prospects. Trust your people. And this doesn't mean just lip service. Be straightforward and unafraid to offer constructive criticism of performance. Involve the employee in the process in which you measure his performance."

On communications — "Talking is only half of communications; listening is the other and sometimes more important half. The object of most communications is to stimulate some desired action. Be sure you provide feedback means to insure that the result was achieved."

On the importance of organization inter-relationships — "By knowing what the other departments are doing, you can be more effective in your job. Try to learn from your fellow supervisors what they do."

On hand to personally inspect a special requirement of the Royal Swedish Navy's KD2R5 aerial target drones recently was RSN Lt. Cdr. Runo Beckman, officer in charge of the Swedish Navy's drone activities.

Lt. Cdr. Beckman's unit has been using the KD for eight years. One of its acceptance requirements is a special waterproof test for electrical gear in the basic training aircraft drone produced by Ventura.

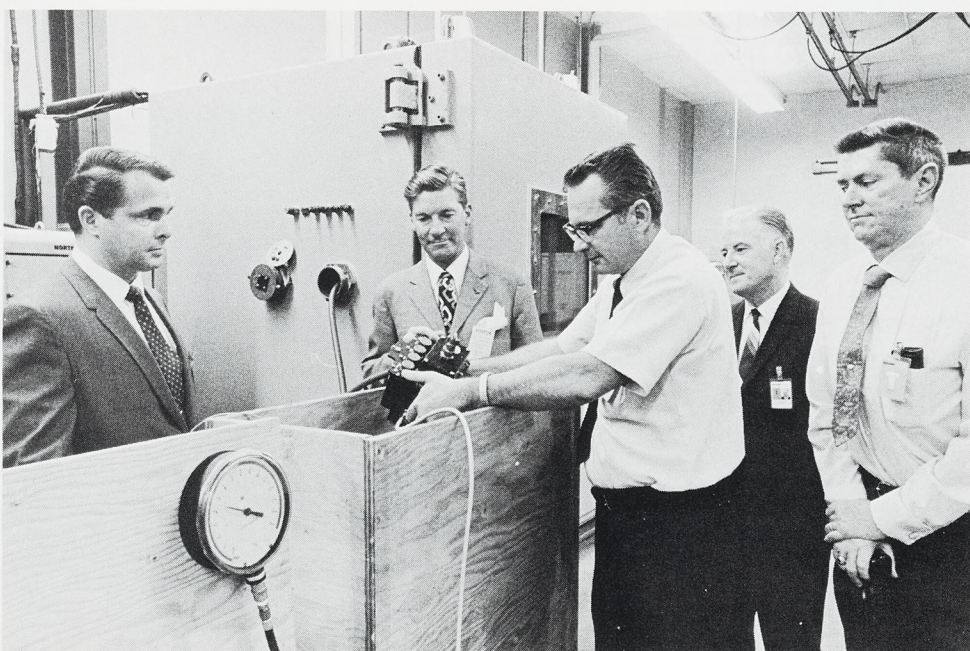
Tests, which took place in the Environmental Lab, were also witnessed by other Ventura KD target office personnel. Lt. Cdr. Beckman met with Stiles Burke of the Product Development department and Ben Collins, Aeronautical Systems program manager.

Robert Flink, also of Product Development, noted that Lt. Cdr. Beckman has been associated with Ventura drones since 1963 and is a qualified KD2R5 flight controller.

"The Swedish Navy is one of the most inventive of our KD customers," Mr. Flink explained. "They use the targets for weapon testing and evaluation as well as to conduct standard air defense crew training target missions."

He noted a typical Swedish innovation is in recovery of the JATO bottles and fixtures which normally are lost into the water upon launch.

Sweden is also considering the MQM-74A/Chukar as a future addition to its target drone inventory.



WATCHING SPECIAL WATERPROOF TEST

Bob Flink, left, Lt. Cdr. Beckman, Les Myers, Ed Burd and Gordon Reeder.

Philippine Air Force F-5 Pilots Win Air-to-Ground Gunnery Meet

Crack fighter pilots of the Philippine Air Force's 5th Fighter Wing, equipped with Northrop-built F-5 Freedom Fighters, bombed and strafed their way to victory in a recent air-to-ground gunnery meet against F-4D Phantom pilots of the U.S. Air Force's 405th Fighter Wing.

The Fighter Weapons Meet was held at the Crow Valley air-to-ground gunnery range in Central Luzon, Republic of the Phil-

ippines. The competition was the first ever staged between the two nations' air forces.

Events included two high angle dive bomb runs, two skip bombs at low level and two strafing passes. The PAF, led by Majors Antonio Sotelo and Jose de Leon, captured four out of six trophies, including the top flight trophy.

Ferdinand E. Marcos, president of the Republic of the Philippines, paid tribute to the participants by

presenting the winners' trophies.

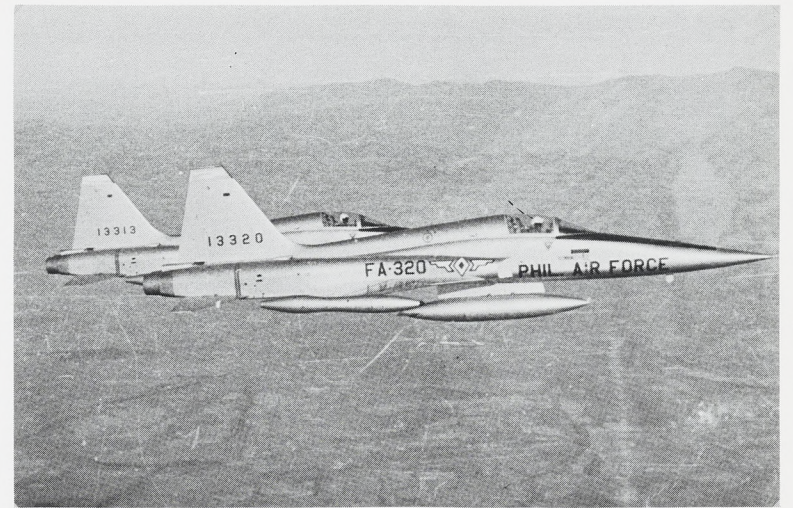
Brig. Gen. Jesus Z. Singson, PAF commanding general, said after the awarding ceremony that the excellent showing of PAF fighter pilots proved their combat-readiness in case of emergency.

Col. Walter Brown, 405th Wing commander, added that the Philippine Air Force's performance is indicative that it is a first class air force. "It is far better to lose a contest such as this to our partners in the Philippine Air Force than to an enemy," the colonel said.

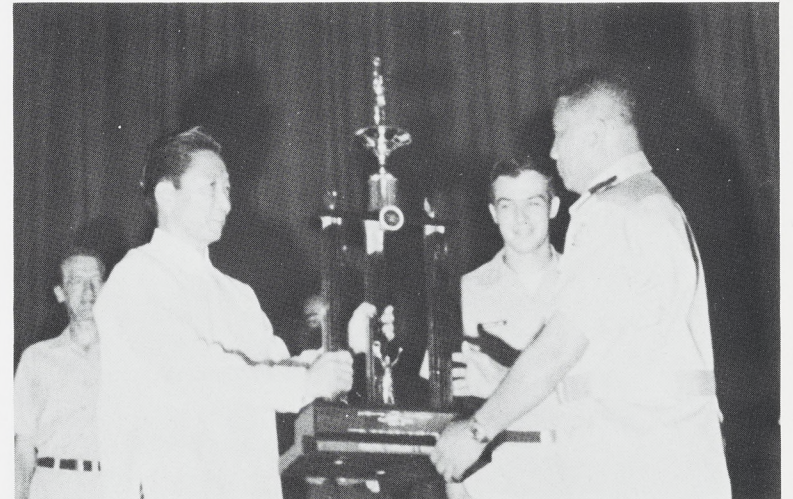
The gunnery contest originated through discussions between Colonel Brown and PAF Brig. Gen. Jose Rancudo, 5th wing commander. Later the idea received enthusiastic support from high-ranking PAF, 13th Air Force, U.S. Embassy and Philippine government officials.

Training benefits, esprit de corps and closer relations between the two air forces were objectives of the meet.

Philippine officials hope to make the gunnery competition an annual affair. A rotating trophy was awarded to the winner in hopes of promoting future meets.



PHILIPPINE GUNNERY MEET SCENES
Philippine AF F-5s fly above. Below, Philippine President Ferdinand E. Marcos presents trophy to Brig. Gen. Jose Rancudo.



Eastern Support Operations Facility Moves to Virginia Site from Maryland

The Washington office of Eastern Support Operations, headed by J. W. Jenkins, recently moved to a new building in suburban Virginia that is near to both the Navy's new buildings and to downtown Federal agencies.

The offices are now housed in a building in the Rosslyn section of suburban Virginia. The same building also houses the Corporate Eastern Regional office.

The offices are a few minutes drive from Federal offices as well as near the Crystal City complex that now houses most of the Navy

Department. The Navy was located in World War I buildings.

LAST '70 ISSUE

Northrop News' annual Christmas issue is now in preparation and will be distributed at all Northrop facilities Wednesday, Dec. 16.

This will be the final issue of Northrop News scheduled for 1970. Deadline for classified advertisements and news items is Wednesday, Dec. 9.

Northrop Employees' Savings Plans 1970 Annual Report

The ninth Annual Report of the Northrop Employees' Savings Plans is presented below. Publication in the Northrop News makes the report available to all employees.

This report covers the cash transactions made during the fiscal year ended July 31, 1970, and during the period since the inception of the Salaried Plan on Feb. 1, 1962, and the Hourly Plan on Feb. 1, 1966. It also shows the condition of the Trust at the close of business on July 31, 1970, the values of the respective funds, the investments held as of that date and the unit values which have prevailed since the plans were started.

Summary of Transactions through 31 July 1970

	During Fiscal 1970	Since Inception
Moneys Received		
From Participants		
Salaried	\$ 6,443,371	\$ 35,958,554
Hourly	1,392,850	5,763,259
Total	\$ 7,836,221	\$ 41,721,813
From Northrop (50% of Participant deposits less forfeitures)	3,326,996	17,699,146
Total Contributions	\$11,163,217	\$ 59,420,959
From Sale of Bonds	3,864,000	18,897,037
From Sale of Stocks	9,678,775	20,517,941
From Sale of Temporary Investment in Profit Fund	1,100,000	1,100,000
From Income on Bond Fund Investments	700,415	2,516,039
From Income on Stock Fund Investments	437,383	1,464,437
From Income on Northrop Stock Fund	441,334	1,880,466
Total Amount Received	\$27,385,124	\$105,796,879
Moneys Paid out		
For Purchase of Bonds (including accrued interest paid)	\$ 4,078,688	\$ 31,330,472
For Purchase of Stocks	13,025,875	37,880,675
For Purchase of Northrop Stock		
(122,900 shares during fiscal year 1970;		
623,458 shares since inception)	4,638,782	19,925,297
To Participants on Withdrawal (in addition to 53,435 shares of Northrop Stock during fiscal year 1970; 139,731 shares since inception)	5,736,837	16,431,933
Total Cash Amount Paid Out	\$27,480,182	\$105,568,377
Balance	\$ (95,058)	\$ 228,502
Cash on Hand—Beginning of Period	323,560	
Cash on Hand 31 July 1970	\$ 228,502	\$ 228,502

Summary of the Condition of the Trust at Close of Business 31 July, 1970

Cash on Hand		
For Purchase of Bonds	\$ 27,903	
For Purchase of Stocks	59,864	
For Purchase of Northrop Stock	140,735	
Total Cash on Hand	\$ 228,502	
Interest Accrued on Bonds	200,088	
Dividends declared but not received on Stocks	27,511	
Dividends declared but not received on Northrop Stock	383	
Market Value of Investments		
Purchase with Participant Contributions:		
Bonds (Cost \$12,559,983)	9,786,955	
Stocks (Cost \$18,803,642)	16,516,217	
Purchased with Northrop Contributions:		
Northrop Stock (Cost \$14,897,196)	8,525,688	
Total Value of Trust on July 31, 1970	\$35,285,344	

The Value of the Trust is divided as follows:

Participant Savings Accounts:		
Bond Fund	\$10,014,946	
Stock Fund	16,603,592	\$26,618,538
Participant Profit Account (Northrop Stock)		8,666,806
		\$35,285,344

INVESTMENTS AS OF 31 JULY 1970

BOND FUND	Face Amount	Cost	Market
Public Utility	\$ 3,646,000	\$ 3,684,644	\$ 2,564,505
Industrial	3,188,000	3,194,319	2,101,492
U.S.A. Government	1,119,000	1,110,006	1,079,445
Bank Finance	1,446,000	1,440,764	1,071,545
Federal Agencies	1,720,000	1,720,000	1,672,675
Foreign	374,000	367,250	254,293
Commercial Paper	1,043,000	1,043,000	1,043,000
	\$12,536,000	\$12,559,983	\$ 9,786,955
STOCK FUND	Shares	Cost	Market
American Airlines, Inc.	com 4,500	\$ 185,829	\$ 84,937
American Express Co.	pf 2,000	139,000	129,250
American Express Co.	com 3,000	174,960	193,500
American Home Products Corp.	cap 3,400	121,822	189,975
American Hospital Supply Corp.	com 14,200	246,872	429,550

STOCK FUND	Shares	Cost	Market
Avon Products	cap 6,600	\$ 358,494	\$ 440,550
Black & Decker Mfg. Co.	com 11,250	344,474	495,000
Boeing Co.	cap 3,000	219,038	40,500
Boise Cascade Corp.	com 5,181	216,975	260,345
Burroughs Corp.	com 2,000	270,512	192,000
Carolina Power & Light Co.	com 3,000	133,016	67,875
Chrysler Corp.	com 2,350	90,591	50,231
Citizens & Southern National Bank of Ga.	com 16,304	369,810	448,360
Combined Insurance Co. of America	com 12,800	602,676	601,600
Continental Corp.	cap 7,800	244,288	272,025
Control Data Corp.	com 5,000	580,252	160,625
Deere & Co.	com 14,000	612,881	423,500
E. I. Dupont De Nemours Co.	com 2,500	399,836	306,250
Eastman Kodak Co.	com 6,040	349,759	383,540
Federated Department Stores, Inc.	com 18,000	624,181	632,250
Ford Motor Credit Co.	Demand Notes	1,010,000	1,010,000
Ford Motor Co.	com 4,500	236,356	202,500
General Electric Co.	cap 7,000	631,705	538,125
General Motors Corp.	com 11,500	851,091	782,000
Harcourt, Brace, Jovanovich	com 2,500	262,075	86,250
Harris-Intertype Corp.	com 6,000	373,140	252,750
Hercules, Inc.	com 6,000	240,547	210,000
Hewlett Packard	com 1,200	59,293	27,000
Illinois Power Co.	com 2,100	80,611	71,925
International Business Machines Corp.	cap 2,606	455,817	657,364
International Nickel	com 7,000	269,550	270,375
International Paper Co.	com 3,000	97,781	103,500
International Tel. & Tel. Corp.	com 17,000	904,947	660,875
Johnson & Johnson Co.	com 12,000	223,608	592,500
McGraw Hill, Inc.	com 10,000	279,394	141,250
Middle South Utilities, Inc.	com 2,600	65,416	59,475
Mobile Oil Corp.	cap 4,000	167,989	187,000
Norton Simon, Inc.	com 7,175	332,041	244,847
Owens Illinois, Inc.	com 9,000	653,155	375,750
Perkin-Elmer Corp.	com 8,000	353,842	192,000
Polaroid Corp.	com 3,046	338,505	181,999
Prentice Hall, Inc.	com 7,042	146,664	248,231
Reynolds Metals Co.	com 6,200	254,553	153,450
Sanders Association, Inc.	com 10,000	464,241	98,750
Schering Corp.	com 10,000	549,110	531,250
Schlumberger, Ltd.	cap 7,500	279,752	562,500
Southern Co.	com 5,000	137,963	103,125
Sunbeam Corp.	com 6,300	214,280	119,700
Teledyne, Inc.	com 6,472	348,218	98,698
Texaco, Inc.	cap 4,470	156,301	127,395
TRW, Inc.	com 14,000	456,356	439,250
Union Oil Co. of California	com 5,000	282,408	151,250
Warner-Lambert Pharm. Co.	com 10,012	503,312	590,708
Will Ross, Inc.	com 3,000	113,625	97,875
W. T. Grant Co.	com 6,000	283,750	216,750
Xerox Corp.	com 4,500	476,980	327,937
		\$18,803,642	\$16,516,217

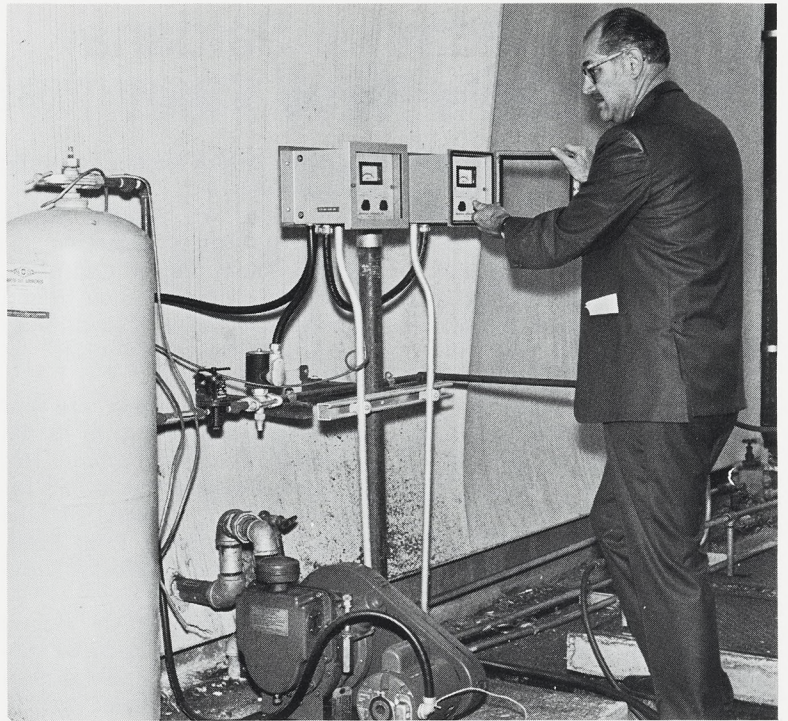
PROFIT FUND	Shares	Cost	Market
Northrop Corporation	483,727	\$14,897,196	\$ 8,525,688

HISTORY OF UNIT VALUES

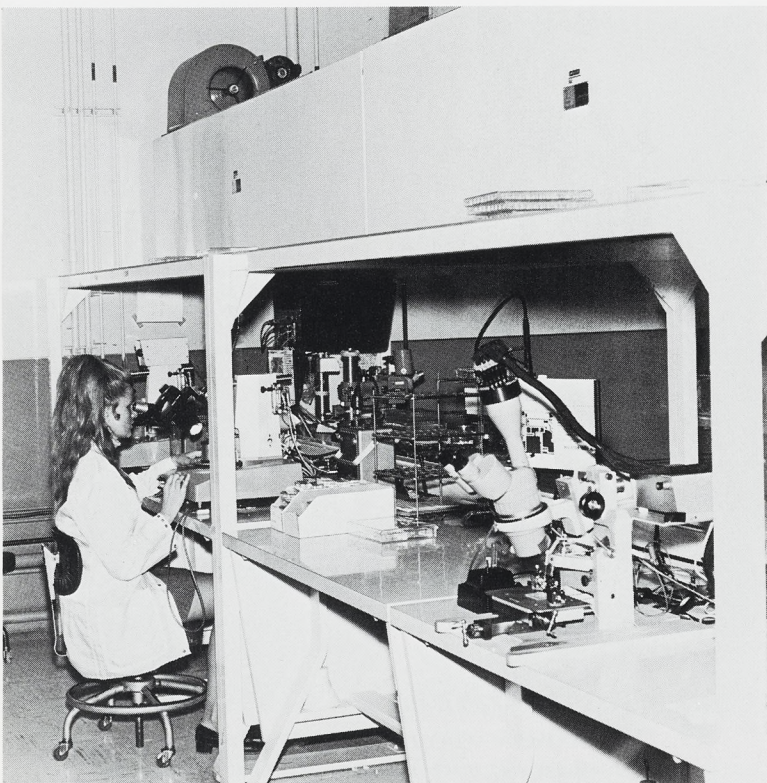
Valuation Date	Bond Fund	Stock Fund	Profit Fund
7/31/62	\$ 1.00678	\$.82673	\$.84299
7/31/63	1.07228	1.03982	.74533
7/31/64	1.12346	1.25478	.64951
7/31/65	1.18096	1.31530	1.05750
7/31/66	1.12924	1.38824	.97052
7/31/67	1.17227	1.78819	1.78347
7/31/68	1.17991	1.98598	1.62488
10/31/68	1.18527	2.11041	1.97807
1/31/69	1.16736	2.15130	2.25938
4/30/69	1.16661	2.17413	1.96409
7/31/69	1.14589	1.94687	1.48373
10/31/69	1.14634	2.22865	1.65253
1/31/70	1.11300	1.97274	1.14087
4/30/70	1.14421	1.78880	.86877
7/31/70	1.14710	1.66295	.73156

The complete annual report of the Trustee is available for inspection during regular first shift hours in the Industrial Relations Office serving your facility.

Electronics Division Facility Uses Most Up-To-Date Methods To Purify Air, Neutralize Water



MAKING SURE OF CHEMICAL NEUTRALITY
Phillip Engels, Facilities, inspects automatic chemical neutralizer.



GETTING A CLEAN AIR BATH
Paula Armstrong works on tiny circuits under fan pushing clean air.



DUCTS CARRY DIRTY AIR OUT
Then Helen Boyd and Ron Hensley will breathe it after filtration.

(Editor's Note: This is the second in a series of articles dealing with Northrop's ongoing efforts at preservation of the environment in day-to-day operations.)

Northrop's Electronics Division is a standout in environmental controls. The division's Navigation department facility in Hawthorne is at a good advantage when it comes to anti-pollution efforts; the facility housing approximately 1,000 people was built just seven years ago.

"Practically all of the anti-pollution technology used here is at the highest state-of-the-art-level," explains Phillip R. Engels, an Electronics Division Facilities Engineering supervisor.

Also making it easier to control possible pollutants is the nature of the work—assembly of various electronic navigation devices and related laboratory activities.

Making Sure

It is the two laboratories which are potential polluters and, accordingly, benefit from the latest in anti-pollution gear.

In the Manufacturing Process Laboratory a dozen people under supervisor Tony Musuraca work at bonding, potting, silk screening, application of conformal coatings and chemically treating aluminum to make it more receptive to different coatings.

These people, in the course of their work, deal with bonding ovens, heat treatments and solvents. If allowed to run down the drain or float into the open air, these agents would be discomforting to the personnel and offensive

to passersby and neighbors.

Getting rid of the noxious vapors is the job of a complex ventilation filtration system. It pumps 10,000 cubic feet of air per minute out of the lab, then filters it through potassium permanganate pellets. Just before the air is returned to the plant attic for eventual recirculation it is pushed through an air filter eight feet high and six feet wide.

The iridite (plating) system is kept clean by pulling air across the plating tanks and then washing the air in an outdoor scrubber which removes all vapors and discharges clean air into the atmosphere.

In the Microcircuit and Development and Production facility at the opposite end of the building on 120th Street a Northrop-designed air filtration system sends a dust-free air wash over work areas where micro-miniature circuits are produced.

Not A Speck

"If a speck of dust gets into the circuitry, then we're in trouble," says Mr. Engels. The filtration system bathes the so-called white and yellow rooms in absolutely clean air. Here again the exhaust air is filtered through potassium permanganate pellets and re-used. This air system represented about 15 per cent of the total lab construction cost.

An unavoidable major byproduct of this work is the use of noxious chemicals. The waste chemicals are automatically treated with anhydrous ammonia and reduced to chemically neutral level.

Assuring that chemical cleanliness is maintained at the outflow point is a moron computer machine. It constantly checks the chemical level and strength of the liquid in a holding tank and injects the ammonia automatically. The liquid is released when its neutral nature is guaranteed.

Another non-polluter is the result of ingenuity and cost-conscious engineering.

Innovation

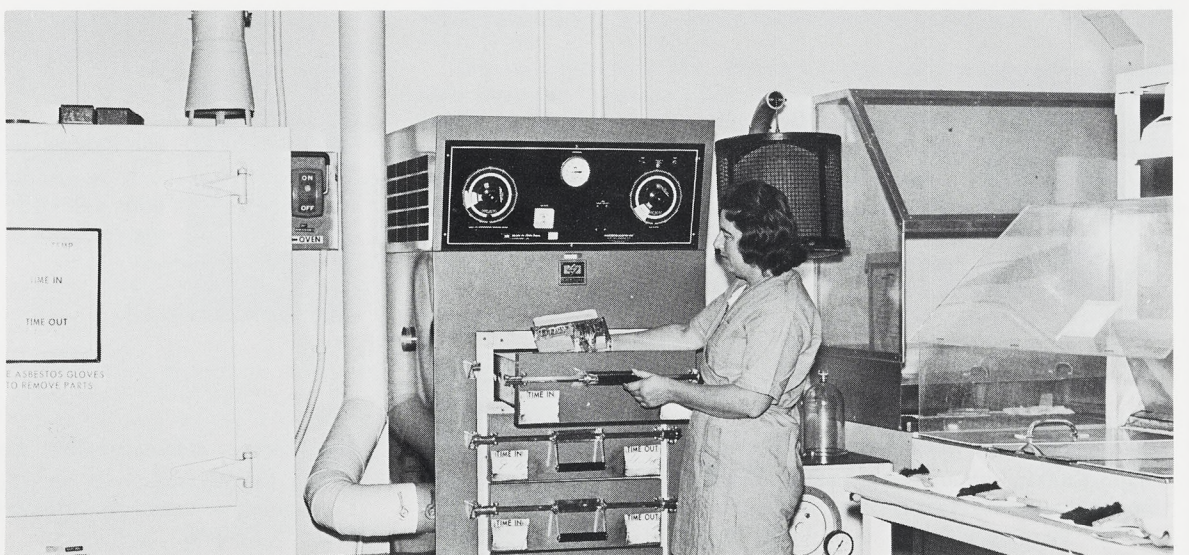
Under routine circumstances liquid nitrogen used in the plant would result in a discharge of nitrogen gas. However, by heating the residual oxygen from its minus-320 degrees Fahrenheit, the gas can be put to good use in the lab as a low pressure nitrogen system and not released into the atmosphere.

While the Navigation department produces the latest in electronic navigation devices, it also uses the most modern methods to assure that it does not contribute to any disruption in the ecological balance of the Los Angeles basin.

(Next: Unique situations at the Ventura Division require innovative solutions.)



PELLETS CLEAN AIR
They're potassium permanganate.



ELABORATE DUCT SYSTEM PROTECTS PERSONNEL
Manufacturing Process Lab's Ruth Schwieger is surrounded by air control aids.

Now It's Admiral Saldana Of El Paso's Navy Fleet

Many honors and titles have been bestowed on Northrop employees, but it appears David Saldana might well be the recipient of one of the most unusual.

Mr. Saldana, an Aircraft Division photographer, is a bonified "Admiral in the El Paso Navy."

The Commissioners Court of El Paso County presented the award, a beautiful plaque, to Mr. Saldana recently for his work on behalf of students of Bowie High School in that city.

It allows him to "float across the Rio Grande at any time without a flagship" and to "assume command of all vessels on those waters during times of national emergencies," among other privileges.

Mr. Saldana graduated from Bowie, trained in World War II as a Signal Corps photographer and subsequently graduated from the Fred Archer School of Pho-

tography before joining Northrop 20 years ago.

In 1964, Mr. Saldana and a group of friends organized the Bowie Alumni Club of California, the first such organization from a school that has a student body comprised almost entirely of Mexican-Americans.

The club has grown and just last month drew 1,200 to its 5th annual dance at the Biltmore Hotel. Greetings and best wishes for the continued success of the group were received from President Nixon and California Governor Reagan.

The California Bowie alumni group, plus others organized subsequently, have been able to provide college scholarships for 31 deserving graduates of Bowie. Others are being planned. Mr. Saldana chaired the local club for four years and continues as its publicity and program chairman.



ADMIRAL IN THE EL PASO NAVY

David Saldana and plaque presented him by the Commissioners Court.

First Mate



KAREN GARTLAND, daughter of Aircraft Division's Gerry Gartland of Security, recently served as First Mate during San Pedro's annual Fisherman's Fiesta. She poses just after being crowned. The 17-year-old Miraleste High School senior had never entered competition of this type. She and two fellow beauties ruled over such events as a boat parade, dance and other civic festivities in the Southland port city.

Chess Lessons Will Start When She Carves The Set

Marcia Woodman is going to learn to play chess — if she gets her chess set built.

Mrs. Woodman's husband is a chess player and promised to teach her if she would build a set. Since she has been making plastics and ceramics as a hobby, she got busy.

To date she has finished six pieces for a giant set measuring eight inches high for the king, and has only 26 more to go before she can start her lessons.

Mrs. Woodman, office clerk for 747 Engineering Liaison, Air-

craft Division, started working in plastics and ceramics "because I saw so many things I wanted and knew that if I ever got them, I'd have to make them myself."

So she bought some materials, an instruction book and began. Before long she was making pieces good enough for gifts for her friends.

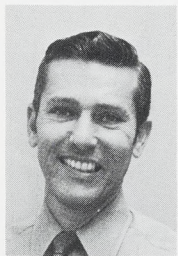
As for the chess set, if she doesn't learn to play, the pieces are designed like medieval knights, castles and peasants, will make decorative pieces for her house.



MARCIA WOODMAN CARVES AWAY

Her husband will teach her chess when set is completed.

WE ASKED THEM — What Will You Do on Your Long Yearend Holiday?



Don Hoff, supervisor, Electronics:

Painting and working around my home. I always look forward to the yearend holiday, it is one of the really great fringe benefits of working with Northrop.

Laura Brown, fabrication inspector, Ventura:

My husband, teenage son, and I will go to Parker, Ariz. on the Colorado River to visit my brother-in-law. The yearend holiday is sort of like a second vacation. I like it very much.



Cecil Allen, Electronics Assembly, Electro-Mechanical:

The holiday season is no time to travel. I'll spend the time at home with my family and will also try to catch up on some yard work I've been neglecting.

Altha Rasmussen, budget analyst, Aircraft:

I'm thinking about going back to Michigan for the holidays. My family lives in Grand Rapids. If I do go, I would like to fly back on the 747.



Arlene Narvaez, senior clerk, Electronics:

My husband and I will take advantage of the long yearend holiday to take a trip up to northern California, near Lake Tahoe. We will do some skiing and spend time with our parents.

Duane Johnson, machinist, Ventura:

I'll probably go to Lake Tahoe with my family. We stay in a camper and ski, toboggan and enjoy the snow. The kids love it and so do our two Samoyed dogs. Sometimes I think the dogs like it more than the kids.



Jan Zenker, secretary, Electro-Mechanical:

It is just what I need to catch up on all the odds and ends that I haven't had time to do during the year.

Jim Warner, data reconciler, Aircraft:

The holiday season is not the time to travel. I am going to spend the time with my family at home in Lennox.



When You Need Something Done, Pitch Right In

When Mrs. Dell Hambricht, secretary, Manufacturing Liaison, decided that the only way she was going to get a shelf was to build it herself, she started on a hobby in a field not usually popular with women—woodworking.

She knew something about tools from having clerked in her father's hardware store as a young girl. She enrolled in an adult woodworking class to make the shelf.

"I had to take some kidding from the other students at first," she reports, "especially when I chose a piece of ironwood which can't be nailed since it is too hard. Anyway, I got the shelf built and found woodworking so much fun that I just kept on."

She made wooden toys for her children. A particularly popular one was a set of ship model kits that the children could put together to make ships. She designed the sets herself, drawing upon her memories of work with the U.S. Navy as a civil service employee.

After this start she went into more elaborate creations, making children's desks, a crib rocker, and a toy dual-wheel dump truck that actually worked, then a scale model design of her own and construction of a convertible camper lodge for which she has applied a patent.

Classified

Classified ad service is provided free of charge to all Northrop personnel. Ads for agencies, commercial enterprises and private businesses are not accepted. The Northrop News reserves the right to edit or omit ads. Obtain ad form C67 from organization clerk and mail ad to Northrop News, 170, zone 62. Ads are limited to one item and one ad per person each issue. Deadline is noon Wednesday, one week before publication.

Automobiles For Sale

- Chevrolet**, 1955 Bel Air, 4-dr., 6 cyl., std. trans., \$100. 213-370-9652. A
- Pontiac**, 1960 Bonneville, 4-dr., h/top, \$225. 213-324-5867. A
- Oldsmobile**, 1957, p/b, p/s, a/c, \$300. 213-430-5027. A
- Chevelle**, 1967 Malibu, 327 cu. high perform., 4 on-the-floor, Hurst shifter, mags, \$1,500. 213-671-9633. A
- Sunbeam**, 1954 Alpine, spare eng. & gearbox, \$300. 213-377-6435. A
- Volkswagen**, 1960 convt., rebilt. eng. w/20,000 miles, \$450. 213-541-1294. A
- Volkswagen**, 1967 fastback, 42,000 mi., \$1,200. 213-370-0479. A
- Plymouth**, 1969 Road Runner, \$2,295. 213-329-4451. A
- Karmann Ghia**, 1963, new int., ext., tires & brakes, AM-FM radio, \$1,950. 213-831-9707. A
- Pontiac**, 1967, 4-dr. h/top, a/c, radio, 4+2 Prem. w/s/w, \$1,700. 213-888-8018. A
- Maserati**, 1962 3500 GTI 2+2 cpe., Lucas fuel inject, d/brakes, steel/alum. whls., 5-spd., 62,000 mi., \$3,500. 714-842-2896. A
- Chevrolet**, 1967 Nova, 2-dr. h/top, 6 cyl., auto., p/s, r/h, 12,600 orig. mi., 1-owner, \$1,500. 213-672-2143. A
- Pontiac**, 1968 Grand Prix, min. bid, \$1,695. Credit Union ext. 1117. A
- T-Bird**, classic, 1957, porthole top, \$1,500. 213-294-1093. A
- Comet**, 1961, auto. trans., new batt., \$80. 714-836-0994. A
- Truck**, 1960 GMC, 1/2-ton, o/hauled, auto. 4-spd. trans., \$500. 213-324-1908. A
- Ambassador**, 1969 SST, 4-dr. sedan, a/c, p/b, r/h, \$2,650. 213-671-1102. A
- Porsche**, 1969 912, 22,000 mi., \$5,500. 213-329-4894. A
- Dodge**, 1964 Dart, 2-dr. h/top, auto., a/c, 1-owner, \$777. 213-542-4628. A
- Ford**, 1961 Falcon, 4-dr. sedan, 6-cyl. stick, \$265. 213-869-4813. A
- Mustang**, 1966, 6-cyl., 14,000 mi., auto. trans., p/s, wire wheel hubcaps, \$1,395. 714-833-3297. A
- Triumph**, 1968 GT6, wire wheels, r/h, \$1,595. 213-374-7416. A
- Rambler**, 1964, 4-dr., p/s, auto. trans., new tires & brakes, \$495. 213-378-1749. A
- Ford**, 1956 4-dr., \$195. 213-677-6294. A
- Truck**, 1965 3/4-ton Chev., big 6 4-spd. trans., 8' Holliday cabover camper, sleeps 4, sink, stove, other extras, 1-owner \$2,500. 213-675-6679. A
- Bus/Camper**, 1965 Volkswagen, 95 h.p. Porsche eng., 16" whls. w/new high floation tires, bunks, \$1,795. 213-396-6739. A

Household Items For Sale

- Table**, walnut, dropleaf, \$150. 805-498-4237. B
- Sewing Machine**, Pfaff, cabinet & chair model, \$85. 213-340-2106. B
- Refrigerator**, top freezer, \$95. 213-679-4442. B
- Crib**, blue-on-white, adjust., mattress, \$22.50. 213-374-6791. B
- Refrigerator**, General Electric frost free, other household items, \$350. 213-679-6365, 213-679-5207. B
- Dinette Table**, round, 42", extends to 64" w/two leaves, plastic laminate, simulated bleached wood finish, \$40. 213-676-6949. B
- Tables**, coffee, 2 end, corner, solid honey mahogany, \$65. 213-373-3067. B
- Refrigerator**, 1970 Welbilt, apt. size, white, 6 mos. old, \$75. 213-372-7726. B
- Washer**, General Electric, auto., \$50. 213-675-3455. B
- Rocker**, antique, \$35. 213-863-3900. B
- Sofa-Sleeper**, queen size, & lamp, \$179. 213-644-7647. B
- Sewing Machine**, Kenmore, many attachments, \$50. 213-831-0930. B
- Sofa**, 6', cocoa brown fabric, \$25. 213-834-0586. B
- Occasional Table**, walnut, 30"x30"x14", \$10. 213-347-0298. B
- Dining Set**, with 4 captain chairs, opens to seat 8-10, drops to 18", olive green, \$55. 213-670-8453. B
- Bar Stools**, 2, w/backs, 30" high, brown naugahyde, \$30. 213-534-1696. B
- Trundle Bed**, \$45. 213-675-5695. B
- Sofa-Bed**, 6', green & gold leaf design, \$125. 213-323-5497. B
- Hide-A-Bed**, Simmons, green tweed, lge. size, \$95. 213-324-7860. B
- Stove**, O'Keefe & Merritt, auto. pilot, \$45. 213-671-1966. B
- Bed & dresser**, antique, cherry wood, hand carved, 100 yrs. old, marble top, mirror, \$300. Box 2301. B
- Stove**, O'Keefe & Merritt, \$30. 213-371-8527. B
- Table**, w/4 captain chairs, maple, \$35. 213-329-7998. B

Household Items For Sale

- Crib**, mattress, white, wooden, adjust. sides, & wooden rocker, \$21 or sell sep. 714-377-5931. B
- Table**, extra lge. Ethan Allan birch dropleaf, 2 12" leaves, \$90. 213-674-0553. B
- Bathroom Pullman**, 5', 2 drws., 3 drs., new marblean top, 7" splashback, \$40. 213-869-2284. B

Miscellaneous For Sale

- Cartridges**, 208 .45 auto., \$12. 213-424-6383. C
- Transceiver**, 1969 Heathkit GW-22-A, 5-channel, 5-watt, seldom used, \$50. 805-498-3791. C
- Water Cooler**, Arctic Circle re-circulating-type, lge. size, cools 5 rooms, \$25. 213-699-8173. C
- Wheelchair**, Sprite, collapsible, used 1 yr., \$100. 213-376-1851. C
- Camera**, auto. Rollielflex 2.8D, 35 mm adapter, case, many other access., \$150. 213-324-9223. C
- Motorcycle**, 1969 Suzuki 50 cc, new pistons, re-bored cyl., \$165. 213-534-1231. C
- Mobile Home**, 1961 Sahara, 8'x40', 1 1/2 bdrm., furn., air cooler incl., \$1,250. 213-671-1850. C
- Motorcycle**, 1969 Yamaha 100 sgl., stripped for dirt, expansion chamber, hvy. duty springs, extras, \$259. 213-645-6211. C
- Bicycle**, girl's 26", \$25. 714-524-2128. C
- Record Player**, stereo comb., General Electric console, \$50. 213-324-1593. C
- Tape Player**, Panasonic 8-track auto stereo w/11 tapes, \$50. 213-545-6719. C
- Boat**, 16' Glaspar, 75 h.p. Johnson, Coast Guard & ski equip., many extras, \$1,395. 714-528-7971. C
- Ring Set**, engagement & wedding, ladies, interlocking, white gold, approx. 1 carat, \$150. 213-644-7941. C
- Bicycle**, boy's Schwinn Sting Ray, 3 yrs. old, \$12. 213-323-3796. C
- Condominium**, 4-bdrm., 2-baths, 2-car gar., elect. door, new dps., & d/washer, laundry, \$3,000 min. dn., 5 1/4% FHA, Fountain Valley, \$24,950. 714-968-7357. C
- House**, 2-story, 5 yrs. old, in Lomita, 4-bdrm., 2 baths, f/place, 2,000 sq. ft., landscaped & recently redecorated, \$37,500. 213-325-3675. C
- Poker Table**, octagon hardwood, \$30. 213-862-3310. C
- Motorcycle**, 1968 Yamaha Enduro 250, \$425. 213-370-7864. C
- Motorcycle**, 1967 Bridgestone, 50 cc, stripped for dirt, expansion chamber, \$150. 213-323-1294. C
- Motorcycle**, Honda, 1966 Superhawk, CB 77, 32 h.p., 338 cc, \$250. 213-547-4141. C
- Airplane**, 1961 Cessna Skyhawk, 340 hrs. smoh, 1710 tt, MK II, MK III, VOR equipped; EGT sys., carb. temp gauge, new tires, Santa Monica based, \$7,000. 213-479-8972. C
- Stereo**, oiled walnut cabinet w/sep. spkrs., 30 W per side amp., Heathkit pre-amp, Silver Tone tuner, \$200. 213-867-8739. C
- Airplane**, Bonanza 35, spar mod., 4 radios, 205 h.p. eng., hyd. constant speed prop, new s/cover, cpts., tires, brakes, \$6,000. 213-374-2915. C
- Pony**, pinto, 13 hands, \$150. 213-881-2604. C
- Typewriter**, Remington Standard, elite type, recently o/hauled, \$55. 213-343-6948. C
- Watch**, Lord Elgin, men's, snake band, 23 jewels, 10 k. gold filled, never used, \$75. 213-342-4479. C
- Trailer**, 17 1/2' 1969 Aljo, self-contained, w/hvy. duty batt., \$3,000. 213-830-5284. C
- Airplane**, 1961 Cessna 210A, fully equipped, \$11,500. 213-399-4168 or Credit Union ext. 1117. C
- Cartop Carrier**, streamlined, weather-tite, lge. capacity, \$25. 213-679-1631. C
- Boat**, 15' cat. & trailer, 2 outbd. motors, Coast Guard equip., \$1,600. 213-425-7033. C
- TV**, 21" Emerson, b&w, console, mahogany, \$35. 213-278-8800. C
- Jogging Exerciser**, indoor-type, \$25. 213-377-3487. C
- Acreage**, 5 acres, Antelope Valley, view, near paved rd., \$400 dn., \$6,000. 213-378-1026. C
- Motorcycle**, 1970 Honda CL350 scrambler, \$625. 213-623-7939. C
- Receiver**, 182 B Scott, AM-FM tuner, 65 w. output power, warranty, \$150. 213-541-3022. C
- Surfboard**, 7' Dewey Weber, 1970 performer squareback, no dings, \$65. 213-375-3977. C
- Organ**, Conn spinet, dble. keyboard, \$450. 213-549-1350. C
- Tires**, 4 positraction, \$90. 213-671-7875. C
- Light Boxes**, 3-channel, hooks up w/stereo, hi-fi, tape deck & spkrs., \$40 or sell sep. 213-329-7756. C
- TV**, 23" color, 1969 model, Westinghouse, under warranty, \$295. 213-429-0731. C
- Aquarium**, 15 gal., all access., assorted tropical fish, \$30. 213-371-8590. C
- Motorcycle**, 1967 Honda 305 scrambler, semi-custom, \$400. 213-671-1363. C
- Rabbits**, 4 Himalayan, 3 mos. old, \$8 or \$2 ea. 213-696-7529. C
- House**, 3-bdrm., sep. dining rm., f/place, cpts., fenced patio, on R-3 lot, Manhattan Bch., \$39,500. 213-545-4965. C
- Microscope**, Steindorff, incl. custom lock equipped case, substage lamp & transformer, never used, \$395. 213-833-6045. C
- Godery Prints**, 1850's, all are framed, \$5 & up. 213-474-5726. C
- Camera**, Eastman Kodak, 35mm, w/flash attach, filters, adapters, \$20. 213-846-5589. C
- Boat Winch**, elec., Trumatic control power, never used, operates on 12-v. car batt., \$70. 213-428-2067. C

BE A CLOWN AND

Share Your Happiness With Everyone

Carl Angeloty is smiling his years away. The calendar says he is 62, but his physician says he is really 45.

"And the reason is that I'm happy," he said in explaining why he acts younger than his years. "And I want to share that happiness with others — especially kids. That is the reason I've taken up clowning."

Mr. Angeloty, who works in the Aircraft Division's F-5, T-38 Sub-assembly, started work as a clown in his off-duty time seven years ago. Since that time he has become a familiar sight at local parades.

Among those where his clowning has won trophies are the annual Gardena Loyalty Day Parade, El Segundo Anniversary Parade, Los Angeles' 187th Birthday Parade, Compton and Annual Inglewood Christmas Parades. He was in the show at the Patsy Award (Academy Awards for Animals) at MGM, and was at the Lawrence Welk Halloween masquerade dances and won five

prizes. Also, Northrop oldtimers will remember him from the Wing Ding shows which the Aircraft Division put on in the 1950's.

It was an Indian costume he wore in a grammar school play that directly led to his becoming a clown later. He made the costume himself from a burlap bag and added some oyster shells for ornaments. After this he continued to make his own costumes for masquerade parties.

Then, seven years ago, he conceived the idea for his character of Smiley the Clown who now appears for parades and picnics.

"All clowns must develop their own individual makeup," he said. "You can't copy another clown's face. I got the idea from the smiling face of a clerk in a store and worked from that. I first worked out an upturned grease paint smile and then built on it in working

out my own face."

In addition to his makeup and tramp costume, he has added mechanical gadgets to get laughs. One is a toupee geared to a tiny motor that whirls around when he lifts his hat.

His wife, Dorothy, encourages his work, but he still makes his own costumes and props. She does join him sometimes in helping out at masquerade parties they attend.

Clowning takes a lot of his time, but he says, "That is what makes the doctor say I'm really 15 years younger than the calendar claims. It's all due to being happy and smiling a lot. I put my feelings into a little poem that I hand out with my clowning:

"Smile—it doesn't cost a thing
It's the muscles in your face.
If everyone would use them
This world would be a
happier place!"



CARL ANGELOTY AT HIS VERY BEST
Each clown develops own makeup and personality for his act.

EDITOR'S NOTEBOOK

Cecil Callaway, Aircraft Division Suggestion coordinator, was the surprised recipient of a special award at the International Conference of the National Association of Suggestion Systems this month in Cleveland, Ohio. Over 500 delegates, representing many of the 1,300 companies who are members of the organization internationally, were on hand.

For the past six years Mr. Callaway has been a member of the board of directors of the organization and has spent many hours compiling the group's Annual Statistical Report and in making annual awards presentations. He was honored for this effort, plus his work, for almost 25 years, in the field of suggestions. He received a beautiful engraved desk clock.

During the conference, Mr. Callaway had occasion to talk with one of the principal speakers, Dr. Robert A. Parker, a NASA astronaut and selected crew member for the Apollo 15 flight. Dr. Parker told Mr. Callaway he had flown to the speaking engagement in a Northrop T-38 jet trainer, one of 25 assigned to NASA.

The mails recently brought an interesting letter from Mr. and Mrs. James Blackburn of 9558 Inspiration Way, Tujunga. May Blackburn wrote the letter to ask that we continue to send Northrop News. "My husband cannot see to read any more and I read it all aloud to him every issue. He was 95 on Sept. 6, 1970 and he enjoys it all. He hears very well and is very alert. We still have the nice photograph taken of him when he retired from Northrop at the age of 78," Mrs. Blackburn wrote.

And she adds that Mr. Blackburn especially enjoys an occasional visit from his "younger" friends who are still at Northrop and would like to see anyone who might be in the area. We are very happy to continue to send Northrop News to the Blackburns and to pass on the invitation.

NORTHROP NEWS

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No. 23

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Editor—Business AffairsRosemary Hussey

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For Sale or Trade

- Ford**, 1970 F250 camper, \$3,200 or \$2,795 w/trade for 1964, '65 compact car & take over \$99 mo. truck pymnts. 213-835-0717. M

Talking Turkey



DOROTHY PRYCHODA, president of the Ventura Division Recreation Club, got right into the Thanksgiving spirit for this photo. Mrs. Prychoda later presented certificates for holiday turkeys to 50 winners of a division-wide Thanksgiving drawing.

Sheraton-Universal to Host Big Dinner-Dance

Reservations are still coming in for the annual Ventura Division Management Club Dinner-Dance set for Saturday, Dec. 5 at the Sheraton Universal Hotel in Universal City.

More than 200 members and their guests are expected at the 15th annual affair which will feature dancing to the Jerry Rosen Orchestra after a deluxe prime rib dinner.

Management Club President

John Wells notes that the no-host social hour begins at 7 p.m. Dinner will be at 8:30 and then dancing will take place from 9 until 12:30.

"We will also introduce the new club officers for 1971," Mr. Wells noted.

Reservations, at \$12 per couple, must be returned no later than Monday, Nov. 30, Mr. Wells added.

GILMORE'S 63 LEADS GOLFERS AS OVER-ALL RACE TIGHTENS UP

Buck Gilmore fired a net 63 to turn in the best score of the day and win the A Flight as the Ventura Division Golf Club played the Saticoy Course on Halloween Day.

Not scared off by the eerie talents of Mr. Gilmore, Sam Westfall came in at 68 for second as John Schaeffer edged Bill Downs, 69.6 to 70.1 for third.

Al Hahn fired a 64 to win the

B Flight ahead of Wayne Merritt's 70 and Al Cui's 72. Winning the C Flight was Dale Thompson with a 70 followed by Ralph Basco, 71, and Dave Coe, 73.

Lois Sheridan had a 71 to best Sue Wiscaver's 74 and Yvonne Aitken's 95 in the Ladies Flight.

Pat Cloward had the longest drive of the day while Ben Beirne, Hal Barber and Jack Haley won closest to the pin honors.

Mr. Hahn and Mr. Merritt are in a head-to-head battle in the over-all point standings as Ventura golfers face the last two tournaments of the year.

The co-leaders have 410 points each followed by Ron Aitken with 310; Mr. Haley, 300; Mr. Westfall, 290; Bob Jones, 270; Lew Vinson, 260; Mr. Gilmore, 250; Warren Sparks, 240; and Ken Brubaker, 230; in the upper-half of the list.

Mrs. Sheridan's 350 points put her narrowly ahead of Mrs. Wiscaver's 330 at the top of the ladies standings.

The next tournament is Saturday, Nov. 28 at the Buenaventura Golf Club in Montalvo.

Invention Evaluation Group Conducts 'Walk Through' to See Patentable Ideas

Is inventive genius lurking under the noses of the Ventura Division Invention Evaluation Committee?

Committee members Frank Tipton and Lauren Persons think that may be the case. So they decided to walk through manufacturing facilities to look for any inventive work not previously recognized.

After such an inspection in September the men decided, with the agreement of Committee Chairman Dillon Cox, to repeat their "walk through" in November accompanied by Willard Graham, Corporate patent direc-

tor, and his assistant, Bill Rundle.

Bill Lang, manager of Manufacturing Research and Development, served as tour guide. He pointed out several devices of interest to the patent-oriented men and discussed others which are in the conceptual stage.

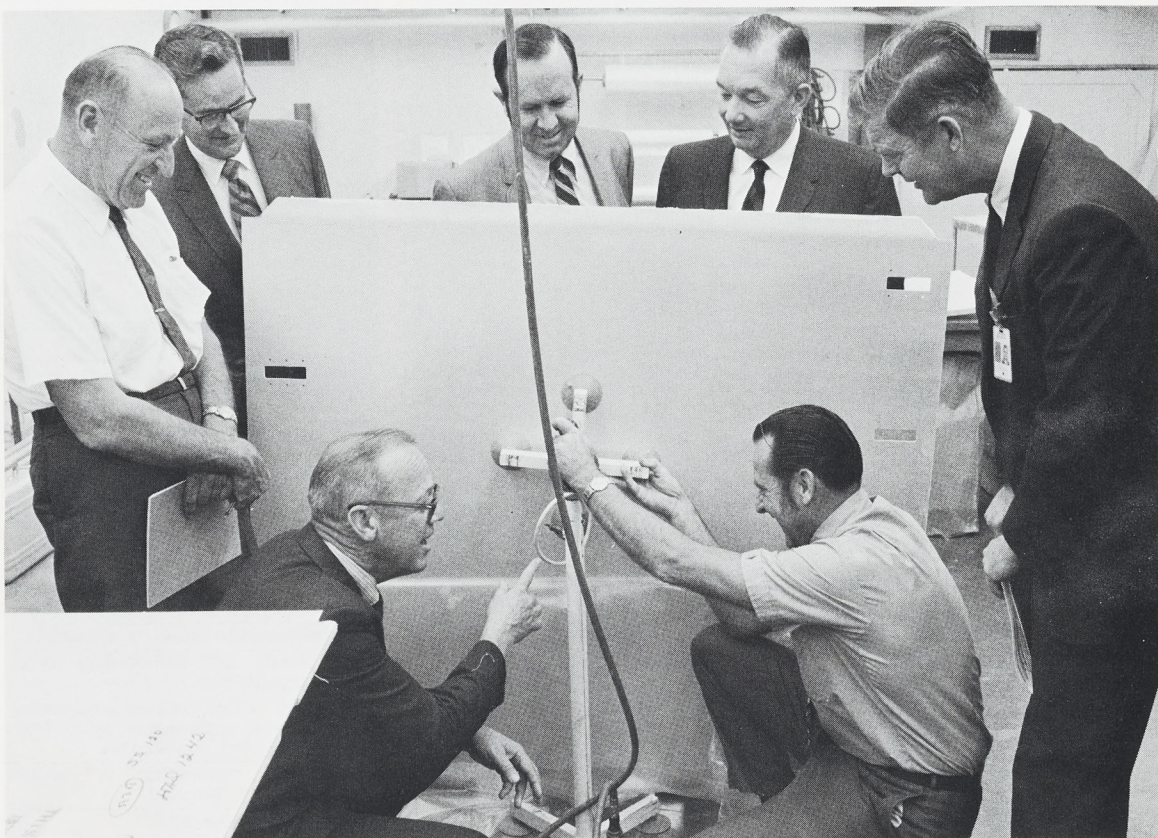
Jack Conner, a senior research engineer, briefed the men on several items of interest and offered a practical demonstration of one of the devices.

"All Northrop personnel concerned with the processing of inventions want to be sure that individual and corporate rights are

adequately protected," Mr. Tipton said later.

The "walk throughs" are held periodically and serve as another communication link designed to keep concerned personnel abreast of Ventura's over-all manufacturing efficiency.

"Inventions are important to the inventor as well as the company," Mr. Cox said. "By maintaining close liaison with the Corporate Patent department we can speed the time between when an invention is conceived and the decision to patent, license, or return the inventor's invention."



LOOKING AT POTENTIAL PATENTS ON 'WALK THROUGH'

Kneeling, Willard Graham, left, Bill Lang. From left, Jack Conner, Lauren Persons, Dillon Cox, Frank Tipton, Bill Rundle.

THANKS TO GRANDFATHER

Friedman Girls Meet Three Celebrities

Grandfathers are many things to the young but to the children of Paul Friedman their grandfather has meant a personal introduction to stars of the entertainment industry.

And the grandfather in question is Ventura Division Electrician Morris Schechter. Mr. Friedman is a 747 assembly bond senior.

His daughters, Robin, 12, and Susan, 9, have not only met composer Henry Mancini, singer Johnny Mathis and actors Chad Everett, James Daly and Steve Forrest, but they've had their pictures taken with them, too.

It's all Grandfather Morrie's doing.

He is the manager of an apartment house in Sherman Oaks which lists a movie industry electrician and theatrical agent among its tenants.

They are friends of Mr. Schechter and met his granddaughters who expressed an interest in the celebrities.

Sure enough when the agent's client, singer Mathis, gave a concert at the Forum with Mr. Mancini the girls were ushered backstage where they were warmly greeted by the stars.

In the late summer, the movie

electrician took Robin for a day on the set of the television series "Medical Center" where she was introduced to stars Everett, Daly and Forrest. She spent the entire day watching the filming and dining with the actors.

F-5-21

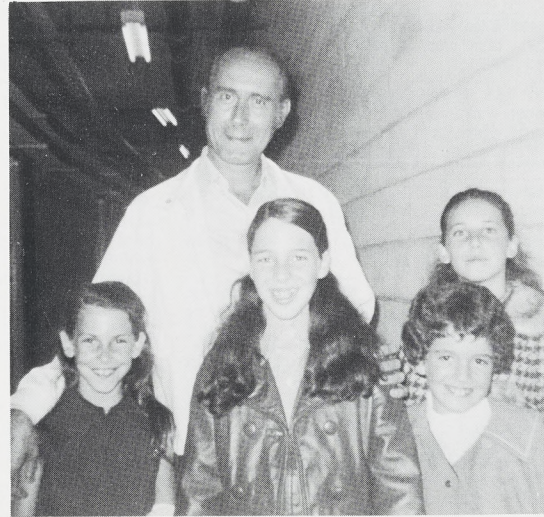
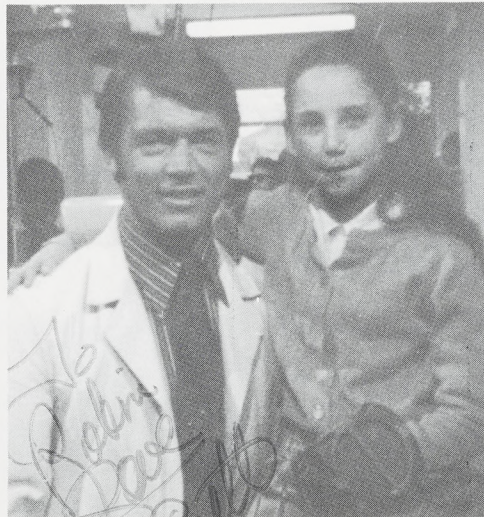
(Continued from page 1)

aircraft at a cost of \$1.6 million each for a total of \$520 million. If, in addition countries which have purchased the basic F-5 want to upgrade their air forces through purchase, the contract could mean business in excess of \$1 billion over a period of years.

Selection of Northrop to produce the latest generation of supersonic fighters for Allied nations capped a lengthy and intense competition between Ling-Temco-Vought, Lockheed, McDonnell Douglas and Northrop.

The International Fighter is designed to provide U.S. allies, primarily in Southeast Asia, air-to-air superiority over the most advanced aircraft expected to be deployed against them.

Development and prototype testing of the Northrop F-5-21 have been under way for more than two years. The F-5-21 was chosen as the result of an evaluation of frontline U.S. fighter planes.



ROBIN AND SUSAN FRIEDMAN VISIT THE STARS

They pose, with friends, with Johnny Mathis, left, and Henry Mancini, right. Chad Everett autographed his photo with Robin, center.

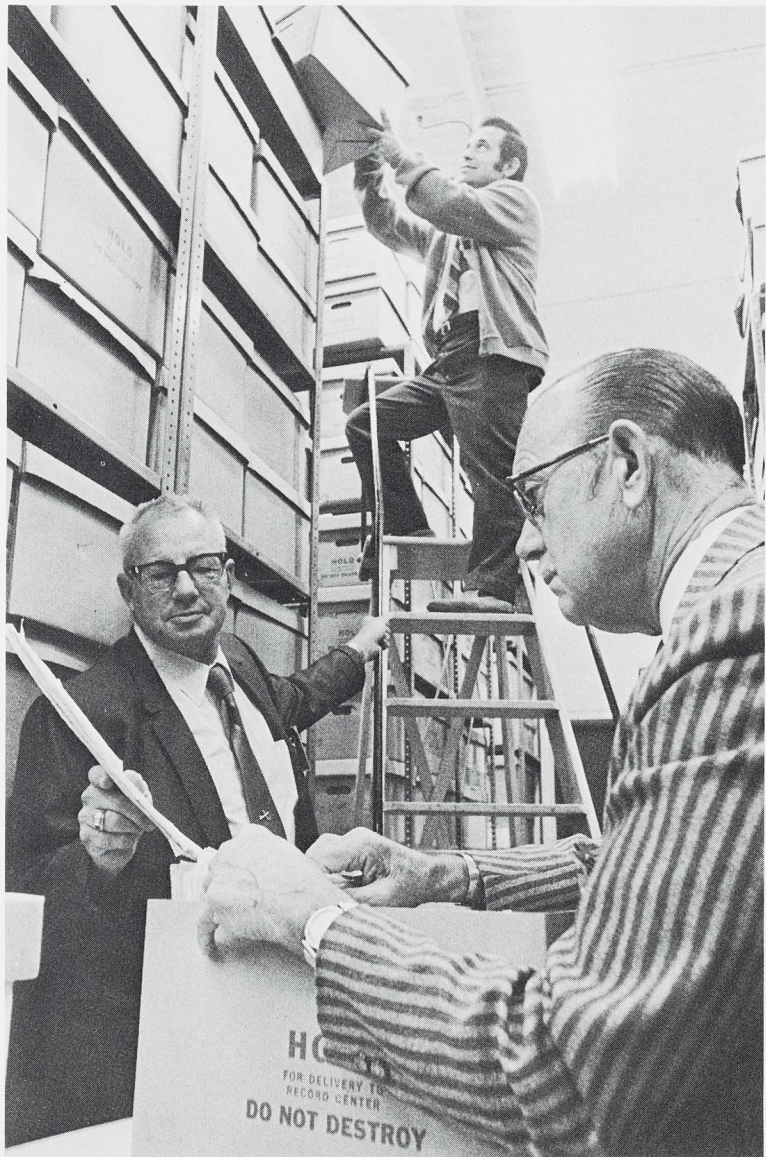


The Season's . . .
. . . Greetings . . .
and Best Wishes
. . . for a Very . . .
Happy and . . .
. . . Prosperous .
. . . New Year.

Aircraft + Electro-Mechanical + Electronics
Northrop Carolina + Page Communications
Architectural Systems + Hallicrafters + Ventura

DIVISION OUTLOOK IS STRONG FOR 1971

Gasich Confident in Review of Ongoing Programs And New Business Opportunities



REDUCING RECORDS AT CENTER
Dick Tupper, left, Bill Adams on ladder and Warren Clymer.

Operation Roundfile Helps To Start The New Year Right

"Start the new year right with the right materials" could be the slogan for this year's Operation Roundfile, Dec. 14 to Dec. 24.

Dick Tupper, who is coordinating the program at the division, said that the Ventura goal of \$50,000 in paperwork savings can be realized by conscientious effort by all division personnel.

A good example, Mr. Tupper noted, would be a review of all documents on file in the Record Retention Center. "If we keep putting papers in there at the current rate we'll have to build a new building or buy lots of microfilm," he said.

Supervisors should review those records on file and have any unnecessary papers discarded. Operation Roundfile, an annual function of Northrop's Cost and Management Improvement Program, involves all personnel.

Credit is allowed for virtually all savings in paperwork and supplies.

NO BETTER TIME FOR A SUGGESTION AWARD THAN JUST BEFORE CHRISTMAS

Fifteen Ventura personnel earned some extra money for Christmas as they received nearly \$400 in cash awards for cost-cutting suggestions.

Don Mills received \$90 for a time-saver in 747 shipping with the suggestion for a new rack tie-down technique. Bob Cruz earned a \$53 bonus for a new potting procedure while Carol Boyer got \$48 for a new part identification process.

Jack Mildon found a less ex-

pensive part to do a major job and earned \$25 for his idea. Paul Friedman also suggested a materials change and got \$25, too.

Receiving \$24 for their ideas were Jesus Tavera and Wilbur Leeds as Dave Moore earned a \$16 award for still another idea.

Pat Meltzer's cost-cutter earned him \$11, while six others garnered \$10 checks. They are Frank Balaszi, Lee Bradley, Alan Gale, John Jarose, Bert Molina and Frances Rush.

"Operation Roundfile is an excellent opportunity for all of us to help make the division more efficient and competitive," he concluded.

"The Ventura Division is as strong as ever. We have strengthened our position in this highly competitive marketplace," according to Division General Manager Welko E. Gasich.

In reviewing the events of 1970 and looking ahead to 1971, Mr. Gasich is confident and optimistic.

"Our five-year plan is progressing pretty much on schedule," he said. "We have been able to weather the financial cutbacks from the Department of Defense and become more competitive."

He described the belt-tightening business cycle as a trying necessity. "No one in the industry is coasting today. Innovation and hard work are resulting in better products at a lower cost," he said.

Like It Is

Certainly Ventura has been affected by the general business slowdown. "Regrettably we have been forced to lay-off competent and loyal personnel." And with manpower at the 1,000 level, "lay-offs are generally over for the foreseeable future, if our acquisition schedule is maintained," he noted.

Although pressured to reduce costs and overhead, the division has been able to maintain its responsibility in contributing to sales goals. "Sales in 1971 are expected to stay at the same level as attained in 1969 and 1970," he said.

Mr. Gasich pointed to the continued success of the MQM-74A target drone as typical of the 1970 performance.

"We are now in final negotiations with the U.S. Navy for the purchase of about 350 more MQM-74A targets in what will obviously be a multi-million dollar contract," he said. The latest contract will bring to 1,500 the number of MQM-74A targets produced and ordered for the Navy.

Deliveries of this latest order run through July of 1972.

Northrop's Ventura Division has sold target drones to more countries (14) than any other company in the world. Sales of the KD2R5 basic training target continue at good levels. The NAMFI contract signed earlier this year introduces the MQM-74A to Europe.

"In winning the \$7.9 million NAMFI competition for complete aerial target service on Crete we beat major French and American target producers," Mr. Gasich commented. The three-year contract is expected to result in added European business.

It was also a good year for the Boeing 747 wing-to-body fairing team, Mr. Gasich went on. "We have been able to cut the production costs virtually in half and our basic order with Boeing assures us of wing fairing business through 1972." Follow-on work could extend that considerably,

"but we must continue cost reduction on this program."

Continuing his 1970 review, Mr. Gasich noted the progress of the Mark 30 underwater anti-submarine target.

"Earlier this year two prototypes of the Mark 30 were being demonstrated at a Navy underwater range. The Navy is using them in operational ASW training exercises and is procuring additional quantities for increased deployment," he said.

Northrop's record of safe landings for American astronauts remained perfect when the ill-fated Apollo 13 capsule splashed down in the Pacific. Apollo 13 was the twenty-third successful performance for Northrop landing systems.

Turning to new business possibilities for 1971, Mr. Gasich said the new International Fighter Aircraft award to the Aircraft Division calls for 325 aircraft. "Ventura could very well receive added work in plastics for the aircraft" similar to that now performed for the Aircraft Division's F-5 and T-38.

Virtually all of the division's existing products and capabilities are receiving the utmost attention in the quest for new business.

Exploring Potentials

Landing system expertise is being used in a proposal to produce the crew escape system for the B-1 bomber.

A proposal for an Air Force B-52 decoy is backed up by 30 years of Ventura Division experience in target drone applications.

"We are actively participating with McDonnell Douglas in a program which could lead to our producing some of the reinforced plastic components for their new aircraft," Mr. Gasich said.

"We are exploring a variety of new uses for the Mark 30 as well as exploiting other capabilities in the marine systems area.

"I am confident in the future of the Ventura Division and its people," Mr. Gasich concluded.

BIG YEAREND HOLIDAY BREAK BEGINS SOON

Ventura Division personnel will be scattered all over the country as they enjoy a 10-day holiday vacation beginning at the end of their shift on Dec. 24.

After working Dec. 24 all but a handful of personnel will receive those days off with pay and not return to work until Jan. 4, 1971.

Skeleton crews remaining at the facility include Security and Maintenance personnel, among others. There are no major work programs now scheduled for that time.

The only organized Northrop event planned for the holidays will be the Recreation Club-sponsored Golf Club's December tournament. It is set for Monday, Dec. 28 at Soule Park in Ojai. Bill Downs can be reached at ext. 558 for further information.



Christmas Greetings



To the Men and Women of Northrop:

Appreciation of our blessings, a genuine feeling of accomplishment, and an abiding hope for the year ahead—these are our sentiments as we approach the traditional yearend holiday.

This is a time of joy and of anticipation. It is a period for assessing the achievements of 1970, and for looking forward to the challenge of 1971.

We are leaving behind a year that has been both trying and rewarding. Our achievements have relied heavily upon faith—faith in our beliefs, faith in ourselves and faith in each other.

May I express my deep appreciation for your continued dedication to our company and for all you have done this year to contribute to our achievements. Mrs. Jones joins me in wishing you and your loved ones all the joys of this very special season. We hope that the new year will bring much happiness to all of you.

Thomas V. Jones
President

To All Ventura Personnel:

With the year drawing to a close and the holiday season upon us we have an opportunity to reflect on the successes of 1970 and the challenges of 1971.

We have achieved success through hard work, confidence, diligence and teamwork. It is the team effort which is at the very foundation of our shared success.

Teamwork at the Ventura Division has been crucial in this highly competitive business environment. It has meant success instead of failure and a sense of pride prevailing over complacency.

I am especially proud of this spirit of unity. For without it, neither you nor I could succeed in effectively carrying out our responsibilities.

In this spirit of working together side by side toward a common goal, I thank each one of you for your contribution to the Ventura Division and sincerely wish you all a meaningful and rewarding Christmas.

Welko E. Gasich
General Manager



ANNUAL SHAREHOLDERS MEETING
Northrop shareholders gathered last week for their 31st annual meeting at the Aircraft Division cafeteria. President Thomas V. Jones is shown delivering his annual report to shareholders as members of the board of directors listen.

More Than 3,000 Employees Sign Petitions Voicing Concern for POWs

More than 3,000 Northrop employees voiced their concern for Americans being held prisoners of war in North Vietnam by signing petitions available through the facilities in November.

These petitions urged the North Vietnamese to abide by the provisions of the 1957 Geneva Convention pertaining to prisoners of war and were part of a nationwide move to demonstrate that Americans are vitally concerned with the men being held captive.

Earlier in the year other employees had joined in this effort by writing personal letters to North Vietnam officials.

Floyd Damman of the Aircraft Division is vice president of the Air Force Association of California,

one of the organizations taking a leading part in the drive to obtain signatures on petitions.

"Final tabulations on this effort in California are incomplete at this time, but we are sure of having several hundred thousand signatures," Mr. Damman said. "Added to efforts being made in other parts of the country, the demonstration is sure to reflect the feelings of millions of Americans."

**IS IT NEWS?
CALL EXT. 4273
HAWTHORNE**

President Jones Voices Confidence; Sees Many New Opportunities

Confidence in a future full of opportunities for new business.

This was President Thomas V. Jones' message to Northrop Corporation shareholders who attended the company's 31st annual meeting December 8 at the Aircraft Division cafeteria.

Noting the strength achieved by the company through a balanced mix of business, Mr. Jones pointed out that of the company's current business about 50 per cent is other than in aircraft; also about 50 per cent is other than U.S. defense.

Mr. Jones cited the numerous new programs the company has in communications and electronics and stressed that there would be a continued high level of aerospace and defense requirements. He deplored the prevalent pessimism about the future of the aerospace industry.

"We see any number of opportunities that are of interest to our company, and we intend to explore each of these to the fullest," he said. "The most immediate of these is the opportunity that comes to us as a result of

having won the competition for the International Fighter Aircraft.

"The IFA award climaxed one of the stiffest and longest competitions in the history of the military establishment," he said. "We are very proud the government has put its faith in us. I have the highest confidence that this contract and this program will be successful and will maintain the position of Northrop as a leading producer of advanced tactical fighters for many years to come."

Other new business opportunities in aircraft include an extension of Boeing 747 fuselage production beyond the presently 201 contracted shipsets, selection as one of two companies to produce prototype A-X close support fighters, and a highly proprietary

P-530 fighter aircraft program designed to meet the Free World's 1975-1990 needs.

Typical examples of communications and electronics programs mentioned by Mr. Jones are the work Page Communications Engineers is doing in Iran in building a nationwide communications system, and the work of Hallcrafters in the field of electronics countermeasures.

Northrop is alert to the possible contributions advancing technology can make in the solution of civil and social problems and now has 10 contracts in that field. "They range from several hundred thousand dollars to several millions," he said. "We are monitoring this area and several others. When the customer makes his needs known, we will be ready to respond."

Retirement Plan Change Is Approved by Boards

Retired employees are being advised by mail this month of amendments to the Northrop Retirement Plan providing a more equitable distribution of variable benefits.

Since 1957, Retirement Plan payments have been based on both a fixed and variable benefit. While the fixed benefit does not change, the variable benefit is determined by the market value of the assets in the Variable Fund on June 30 each year. Payments for the 12 months beginning Aug. 1 have been based on this determination.

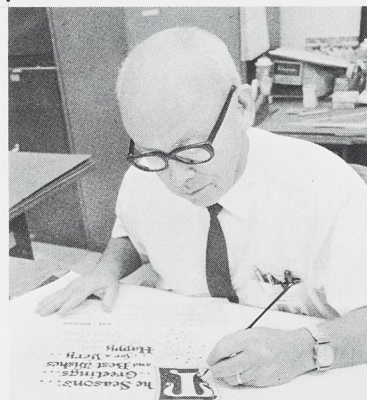
The value of variable assets on June 30, 1970, was substantially lower than a year earlier due to the precipitous decline in the stock market.

Deeply concerned over the potential loss of retirement income in the face of rising living costs, the Northrop Retirement board recommended, and the board of directors approved, amendments calling for variable unit values to

be established quarterly rather than annually.

Variable assets will now be valued at the end of October, January, April and July with revisions in variable benefits made on the first of January, April, July and October.

Cover Artist



DOUG FINCH, a commercial artist for 14 years at the Ventura Division, created the special cover for this year's holiday edition. Mr. Finch is no newcomer to the greeting card technique. With two brothers he started a Christmas card company in Detroit in 1935. The company flourished into nationwide distribution and 21 years later the Finch brothers sold it to a major syndicate and Doug came to California. He has been with Northrop ever since.

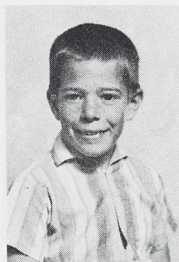
First '71 Issue

Northrop News will begin its 1971 publishing schedule on Jan. 20. Deadline for news items and classified advertisements will be Wednesday, Jan. 13.

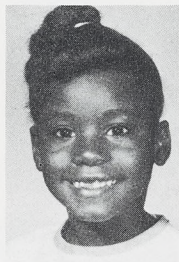
Christmas Means Many Things to The Very Young



Deanna



Ralph



Ginger



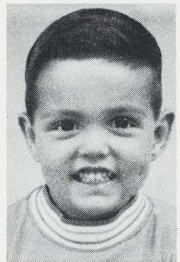
Gary



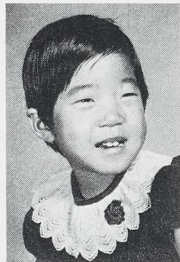
Katie



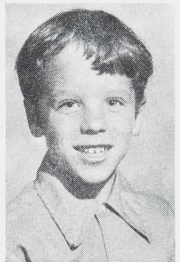
Carol



Christopher



Jill



Doug



Raylene

Recognizing that the true spirit and meaning of Christmas often reflects best in the minds of the very young, Northrop News is repeating a special feature starring the young. With an assist from Northrop parents, we asked a representative group of youngsters "What does Christmas mean to you?" Here are their answers:

Deanna, 10, daughter of Laura Martinez, Electronics, "Christmas is Jesus' birthday and a time to give presents to people you love."

Ralph, 7, son of Ralph McCarron, Corporate office, "It's about special things and toys. It's really about Jesus' birthday. It's about joy and giving — giving love, giving kindness, giving happiness and giving wonderful things."

Ginger, 7, daughter of Arthur Murphy, Aircraft, "I

think Christmas is nice and Santa Claus gives all the boys and girls toys and he also gives Mother and Father presents. I just love Christmas."

Gary, 3, son of Jean Diener, Electro-Mechanical, "Christmas means Christmas trees and Hot Wheels."

Katie, 4, daughter of Buzz and Gloria Correy, Ventura, "Oh, Santa Claus. He comes to our house after we go to bed and brings us things. He's going to bring me some dolls. I love dolls and toys."

Carol, 5, daughter of Joe Saline, Electro-Mechanical, "Well, we have fun. I like the surprises and I like to play with my presents after breakfast and when we come home from church."

Christopher, 3 years, 10 months, son of Robert Craw-

ford, Aircraft, "That is when Daddy will be home to help play with the toys Santa Claus brings me."

Jill, 5, daughter of Glenn Yamamoto, Northrop Data Processing, "Getting lots of things like pencils, oven and books from Santa if you listen to your Mommy and Daddy."

Doug, 6, son of Lyle Finley, Ventura, "It's Jesus' birthday. I think of that mostly. But I think of presents, too. You get presents and a Christmas tree. I get candy in my stocking. I want toys, presents, clothes, a cap gun and tools. I build things with boards and stuff."

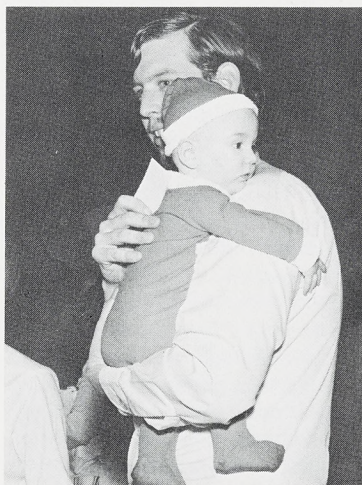
Raylene, 5, daughter of Gary Myerson, Electronics, after 15 minutes of quiet concentration, this young lady summed up her answer in a single word—"TOYS."



Christmas 1970



NRC'S 31ST ANNUAL Children's Christmas party at the Shrine Auditorium last Sunday was a big success. Before doors opened Euclides Heredia and children, Ericka, Euclides Jr., Patricia, Elkin, and Eduardo took time out to look over the program.



SMALLEST SANTA at the Shrine Auditorium was six-month-old Vincent B. Toomey Jr., who rides comfortably on the shoulders of his dad, Vincent B. Toomey.



CHRISTMAS MEMORIES of a six-year-old encountering Saint Nick is relived by Donna Lee Langston, left, and her mother, Libby Fish. Taken at an NRC Children's Party 17 years ago, picture ran in the Northrop News Christmas issue of 1953. Donna is now a security clerk and Mrs. Fish a printed circuit board fabricator at the Electro-Mechanical Division.



DECORATIONS are a traditional part of every Northrop Christmas. Typical is this scene at Northrop Ventura, where Betty Randolph, left, a blueprint clerk, checks notes with her boss, Helen Clark.



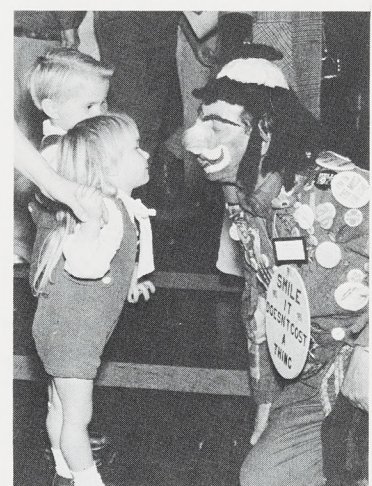
VOLUNTEER HELPERS were many for the annual Children's Christmas party at the Shrine Auditorium. This group of helpers, with their favorite friend, Santa Claus, are typical of many who gave their time to make party a big success.



NORTHROP CORPORATION extended greetings to Shrine Auditorium crowds through selected representatives. Ross Miller, center above, talks with NRC Presidents Siscro Newton, left, and Don Caughlin before going on. Below, M. G. Gonzalez, right, in discussions with from left Lois Paris, Dick Greetan and Dave Carney.



CHRISTMAS GIFTS are clutched by Toni and Yvonne Chadwick as their parents, Howard and Rose Chadwick, beam approval at Shrine Auditorium party. Below is a view of the auditorium. Photos by Ron McGaffin.



A BIG KISS for clown was offered by Sheryl Levesque as her brother, John, looks on.



Classified

Classified ad service is provided free of charge to all Northrop personnel. Ads for agencies, commercial enterprises and private businesses are not accepted. The Northrop News reserves the right to edit or omit ads. Obtain ad form C67 from organization clerk and mail ad to Northrop News, 170, zone 62. Ads are limited to one item and one ad per person each issue. Deadline is noon Wednesday, one week before publication.

Automobiles For Sale

- **Chevrolet**, 1958 Biscayne, 4-dr., w/283 V-8 eng., \$175. 213-631-0304. A
- **GTO**, 1968, r/h, 4-11 posi. rear, 4-spd., tach., Doug headers, Holly carb., \$2,000. 213-323-2025. A
- **Datsun**, 1966 1600 roadster, removable h/top, radio, new brakes, clutch & battery, \$1,100. 213-545-6719. A
- **Camaro**, 1969, new Polyglas tires, 25,000 mi., warranty kept up, r/h, \$2,100. 213-675-2772, 213-675-5146. A
- **Maserati**, 1961 3500 GT Superleggera cpe., low mileage, 2 owners, \$2,100. 714-525-2516. A
- **Karmann Ghia**, 1963, 63,000 miles, \$900. 213-831-9707. A
- **Buick**, 1967 Riviera, AM-FM, full power, \$2,550. 213-292-3979. A
- **GTO**, 1967, p/s, p/b, console, auto. trans., \$1,400. 213-836-0582. A
- **Fairlane**, 1964 sport coupe, 289 eng., auto. trans., p/s, r/h, \$475. 213-598-2814. A
- **Fiat**, 1970 850 Spider, 10,400 mi., \$1,750. 213-826-6314. A
- **Pickup**, 1956 Chev., ½-ton, V-8, 3-spd. plus o/drive, Borg sleeper top, incl. extra complete V-8 eng., \$350. 213-324-1949. A
- **Volkswagen Van**, 1959, needs 1st gear, \$350. 213-863-0528. A
- **Dodge**, 1969 Dart, custom 2-dr. h/top, a/c, p/s, p/b, V-8, auto., \$2,350. 213-377-4585. A
- **Ford**, 1964 Galaxie, 2-dr. h/top, \$795. 213-676-1235. A
- **Datsun**, 1970 roadster 1600, 8,500 mi., under warranty, assume loan \$1,850 bal. & \$600 equity, \$2,450. 714-523-8236. A
- **Chevrolet**, 1963 Impala S/S, 409 cu. in. dual quads, chr. headers & whls., \$695. 213-645-7715. A
- **Chevrolet**, 1962, 4-dr., auto., a/c, r/h, new brakes, starter & water pump, \$200. 213-679-9366. A
- **Volvo**, 1958, new tires, trans. rad., U-joints & brakes, \$195. 213-676-5101. A
- **Corvette**, 1966, auto. trans., a/c, AM-FM radio, \$1,800. 213-452-3915. A
- **Lotus**, 1967 Europa, 28,000 miles, \$2,300. 213-373-3196. A
- **MGB**, 1965 roadster, \$1,000. 213-377-4180. A
- **Toronado**, 1970, 5,000 mi., many extras, \$5,000. 213-329-2842. A
- **Station Wagon**, 1967 Ford Country Squire, 39,000 miles, \$1,650. 714-879-8148. A
- **Cadillac**, 1959 Sedan DeVille, full power, \$150. 213-545-1325. A
- **Sunbeam**, 1954 Alpine, & spare eng., \$300. 213-377-6435. A
- **Pickup**, 1962 Ford, needs body work, \$500. 213-370-6431. A
- **Chevrolet**, 1966 Malibu, 4-dr., a/c, AM-FM, p/s, auto., \$995. 213-837-2569. A
- **T-Bird**, 1956, classic, full power, new paint, \$1,700. 213-756-1812. A
- **Datsun**, 1964 SPL310 convt., 64K mi., h/top, \$700. 213-378-1478. A
- **Sport Prinz**, 1959 fastback, 3,000 mi. since eng. o/haul, \$200. 213-322-2616. A
- **Mustang**, 1965 h/top, 8-cyl., \$700. 213-757-0573. A
- **Mustang**, 1967 GTA, 17,500 mi., 5 yr. war., 390 cu. in., auto., p/s, d/brakes, 4-track Craig stereo, \$1,900. 213-326-7280. A
- **Oldsmobile 98**, 1968, min. bid \$2,295; housecar, 1969 Dodge, min. bid \$3,450. Credit Union ext. 1117. A
- **Rambler**, 1964, 4-dr., 287 V-8, \$495. 213-378-1749. A
- **Alfa-Romeo**, 1960 Giu. Spyder rdstr., r/h, w/lug. & ski racks, chains, \$550. 714-826-6744. A
- **Pickup**, 1967 Ford, ½-ton, r/h, auto. trans., 6-cyl., 42,000 mi., \$1,950. 213-671-3540. A
- **Station Wagon**, Chevrolet, 1968 Caprice, 9 pass., 24,000 orig. mi., a/c, p/s, p/b, 1-owner, \$2,700. 213-371-4351. A

Household Items For Sale

- **Table Lamp**, ceramic, complete w/shade, \$5. 213-347-0298. B
- **Dinette Chairs**, 4, brown metal frames, seats & back, beige upholstery, \$12. 213-676-6949. B
- **Dinette Set**, round Formica, extra leaf, brown & gold, \$25. 213-670-8453. B
- **Bedsprad**, blue & green, queen size, w/blue & green lamps & throw rug, \$30. 213-371-2692. B
- **Trundle Bed**, 2 mattresses, bottom bed rises to ht. of top bed w/finger touch, \$45. 213-675-5695. B
- **Sofa**, Stylecrest Early American, w/2 chairs & ottoman, \$85 or sell sep. 213-372-8903. B
- **Mattress**, innerspring, springs, frame, \$20. 213-328-4408. B
- **Living Room Set**, Danish modern, w/matching walnut tables, \$125, other items. 213-676-5425. B

Household Items For Sale

- **Sofa**, & chair, modern style by Kroehler, beige fabric, \$40. 213-327-2279. B
- **Bed**, roll-away type, twin size, extra thick mattress, \$20. 213-320-3226. B
- **Desk & chairs**, 2 children's, \$10. 213-376-4831. B
- **Sofa**, 6', sides let down into bed, \$20. 213-541-3000. B
- **Dining Room Set**, 5-pc., pedestal table, 44" dia. w/2 12" leaves, 4 caneback chairs, hutch, 3 glass drs., 4 drwrs., 6' high, 4' wide, fruitwood inlaid w/myrtle, \$400. 714-836-0994. B
- **Refrigerator**, 12 cu. ft. Coldspot, \$35. 213-323-6750. B
- **Sewing Machine**, Pfaff, zig-zag, many attachs., cabinet & chair model, \$85. 213-340-2106. B
- **Coffee Table**, solid maple, \$25. 213-676-0666. B
- **Bowl**, etched crystal, \$10, other items. 213-474-5726. B
- **Bed**, contemporary walnut, king size, room outfit, \$100 or sell sep. 213-377-3487. B
- **Pullman**, 5', for bathroom, 2 drwrs., 3 drs., new marblean top, 7" splashback, \$40. 213-869-2284. B
- **Love Seat**, green naugahyde, 48" long, \$50. 714-525-6398. B
- **Chair**, recliner, naugahyde, \$30. 213-675-1825. B
- **Range**, gas, 40" O'Keefe & Merritt, auto. oven, high broiler, \$75. 213-670-4645. B
- **Washer**, 1968 Hoover, portable, \$75. 213-378-7869. B
- **Fireplace Set**, free standing screen, tools, andirons, \$15. 213-423-6325. B
- **Bar Stools**, 3, \$100. 213-326-6511. B
- **Range**, O'Keefe & Merritt, Contempo III, gas, 2 ovens, Teflon liners, 5 burners, other extras, white, used 1 yr., \$290. 714-539-1488. B

Miscellaneous For Sale

- **Trailer Hitch**, 650 lb. tongue wt., Eze-Lift, Kelsey Hayes elec. brake control, complete, \$100. 213-324-1593. C
- **Coin Collection**, penny, nickel, dime, quarters, ½ dollar, \$1,175. 213-644-7941. C
- **Exerciser**, Sears, manual bicycle, \$25. 213-862-3310. C
- **Light Boxes**, 3-channel hookup w/stereo, hi-fi, tape deck, spkrs., \$15 ea. or \$25 for both. 213-329-7756. C
- **Acreage**, 2½ acres fronting on new Adelanto pvt. airport, M-1, \$75 dn., \$75 mo., \$7,500. 213-378-1026. C
- **Exercise Bicycle**, near new, \$20. 213-326-3135. C
- **Engine**, 1964 Chev. truck, 6-cyl., complete, \$100. 213-671-1966. C
- **Calculator**, old Monroe hand-crank model, \$100. 213-439-6432. C
- **TV**, portable b&w Westinghouse w/stand, \$50. 213-328-7887. C
- **Trap Thrower**, hand-type, & clay targets, \$4. 213-375-8804. C
- **Motorcycle**, 1970 Suzuki, 50 cc model, 1,300 mi., \$225. 213-644-4859. C
- **Movie Camera**, 8mm, elec. eye, 3 turret lens, carrying case & instructions, \$20. 213-677-5658. C
- **Motorcycle**, Honda mini trail w/Honda 65 cc eng., \$175. 213-377-4660. C
- **House**, 3-bdrm., newly decorated, cpts., dps., dble. gar., R-3 zone, 40' x 150' lot, \$25,500. 213-644-1910. C
- **Wet Suit**, men's & women's, med. size, full length, & Farmer John, \$35 or sell sep. 213-644-0071. C
- **Motorcycle**, 1970 Honda CB 450, \$850. 213-676-6726. C
- **Acreage**, 160 acres, Modoc County, Ft. Bidwell, cleared, level, fenced, on paved rd., \$150 acre. 805-947-7409. C
- **Home**, Manhattan Beach, 3-bdrm., sep. dining rm., f/place, cpts., fenced patio, on R-3 lot, terms, \$39,500. 213-545-4965. C
- **Record Player**, stereo, portable Westinghouse, 3-spd., w/tone control, \$40. 213-679-2864. C
- **Roller Skates**, girl's white, size 6½, \$6.50. 213-373-5952. C
- **Boat**, Sidney windward sabot, w/cartop carrier, \$325. 213-396-1574. C
- **Motorcycle**, 1965 Yamaha 250 twin, \$225. 213-323-4257. C
- **Surfboard**, Gordon & Smith Magic, 7'2", \$50. 213-675-5701. C
- **Ski Boat**, 14', trailer, 75 h.p. Evinrude motor, \$500. 213-371-6879. C
- **Camera**, Polaroid, model 250 w/case & flash, 1 yr. old, \$60. 213-675-8259. C
- **Drum Sets**, Majestic, 7 pcs., new heads, \$100. 213-567-3480. C
- **Motorcycle**, 1970 Kawasaki Green Streak, 100 cc, never raced, extras, \$475. 213-675-7915. C
- **Pups**, shepherd-collie-hound, 7 wks. old, \$5. 213-641-9995. C
- **Kittens**, Siamese blue point, \$15 ea. 213-377-9414. C
- **Motorcycle**, 1969 Honda mini trail, 50 cc, \$150. 213-532-7175. C
- **Phonograph**, 1917 Victrola, 78 rpm, hand-crank, console model, \$48. 213-372-1386. C
- **Guitar**, Epiphone FT-30, case, \$65. 213-375-7568. C
- **Projector**, 35mm, slide, TDC Bell & Howell w/45 30-slide trays, \$30. 213-374-4780. C
- **Typewriter**, Royal portable, manual, cleaned & o/hailed, \$20. 213-325-2292. C
- **Dinner Ring**, lady's diamond, never worn, guarantee & exchange certificate, \$195. 213-676-2597. C

Miscellaneous For Sale

- **Guitar**, Fender Mustang & case, \$100. 213-833-5755. C
- **Motorcycle**, Kawasaki 90, stripped for trail, 1 yr. old, \$250. 714-630-2532. C
- **Camera**, Yashica Electro 35, f1.7 lens & case, \$75. 714-847-5938. C
- **Camera**, Polaroid Colorpack IV, carrying case, latest model, never used, \$25. 213-541-1625. C
- **Boat**, 15' cat., trailer, 2 outbd. motors, Coast Guard equip., \$1,600. 213-425-7033. C
- **Bicycle**, boy's Sears 24" Spyder, single spd., \$27. 213-326-5979. C
- **Stereo System**, Heathkit SD-1, w/phono changer, diamond stylus, FM tuner, FM multiplexer, w/cabinets & spkrs., \$145. 213-846-5589. C
- **Banjo**, 5-string, incl. armrest, instruction records, many extras, never used, \$75. 213-679-5195. C
- **Exerciser**, slim gym, never used, \$79.50. 213-671-1102. C
- **TV**, Magnavox, 21" b&w, radio & phono comb., \$50. 213-372-5880. C
- **Hardtop**, vinyl & tonneau cover, black, for MG Midget, & auto radio, 12 V., 7-transistor, \$125 or sell sep. 213-478-5784. C
- **Motorcycle**, 1970 Honda CL350 Scrambler, \$625. 714-623-7939. C
- **Mobile Home**, 1968 Buddy, 2-bdrm., 12 x 60, over \$3,000 in improvements, Rancho La Paz Club, Anaheim, \$7,995. 714-871-7625. C
- **Pups**, Beagle, females, 11 wks., AKC, small, shots, tri-color, \$40. 714-539-5120. C
- **Organ**, elec., Lowrey, 2-manual, Holiday model, \$450. 213-346-3751. C
- **Folk Guitar**, Kawi, \$30. 213-377-6648. C
- **Exercycle**, Sears, w/adjust. tension, \$30. 213-325-4860. C
- **Motorcycle**, 1969 Yamaha 100 sgl, parts to make street legal, elec. start, \$265. 213-645-6211. C
- **Afghan**, multi color, lge. size, fits dble. bed, \$35. 213-346-2460. C
- **TV**, Gen. Elec., 21" b&w, channels 2-13, \$35. 213-645-1274. C
- **Tent**, J. D. Williams, Sears, used twice, \$100. 213-835-8608. C
- **Pup**, 4 mos. old, German shepherd, has shots, \$10. 213-325-3675. C
- **Ski Carrier**, for VW, holds 2 pr. skis, bltin cyl. locks, never used, \$17. 213-374-6867. C
- **Motorcycle**, Honda, 1968 CB 175, \$350. 213-672-2370. C
- **Transaxle**, for 1959 & earlier VW, \$15. 213-532-4287. C
- **Heathkit C-B Set**, 100 W. linear amp, Johnson mike, super mag antenna, \$125. 213-670-2098. C
- **Radio Control System**, Citizen-ship analog proportional, plane, motor, complete, never flown, \$100. 213-377-6193. C
- **TV**, 21" Packard Bell, b&w, maple floor model w/remote control, \$100. 213-675-7381. C
- **Bunnies**, checker & flemlish, 5 wks. old, \$1.25 ea. 213-370-0315. C
- **Airplane**, 1961 Cessna 210A, fully equipped, \$11,500. 213-399-4168 or Credit Union ext. 1117. C
- **Ski Boots**, Austrian made Koflach, size 10½ med., used 3 times, \$18. 213-679-9821. C
- **Window**, alum. frame, sliding-type, 36x54, \$18. 213-376-4032. C
- **Ski Boat**, 16' Glen L. Design, completed hull, fiberglassed, trailer & extras, \$275. 714-894-4680. C
- **Pups**, basnet, AKC, ped., champion sired, shots, \$75 up. 213-677-6204. C
- **Typewriter**, Underwood, tools & other items, \$25. 213-676-9449. C
- **Pups**, Lab, AKC, champ sire & dam, ofa certs., black, \$150. 213-881-2604. C

Wanted to Buy

- **Frame** for murphy bed, dble. bed size. 213-379-3300. D
- **Oscilloscope**, moderate quality, condition & access. will be considered. 714-879-5874. D
- **Records**, children's 45 rpm nursery rhymes & numbers. 213-676-3050. D
- **Delivery Van**, any make or model. 213-322-0298. D
- **Souvenirs**, German & Japanese of WWII, uniforms, medals, no firearms. 213-375-4312. D

Free (To Be Given Away)

- **Dog**, female, shots, license & dog house. 213-863-3900. F
- **Sections** of palm tree, 2 8', for making tik fag faces. 213-374-4703. F
- **Bunnies**, 8 wks. old, grey & white blue, Dutch breed. 213-320-6388. F

Rentals Offered

- **Cabin**, Big Bear City, 1-yr. old, 2 bdrms., 1 bath, \$75 wk., \$35 w/end. 213-320-6486. G
- **Cabin**, Moonridge, Big Bear Lake, 3-bdrm., 2 baths, f/place, completely furn., family only, \$125 wk., \$50 w/end. 213-326-7232. G
- **Vacation Cabins**, 1 & 2 bdrms., stream, patio, f/place, \$30-\$40 w/end, \$70-\$90 wk. 213-868-8040. G
- **Apt**, 2-bdrm., furn., cpts., dps., lge. pool, closed gar., near El Camino, \$190. 213-329-5986. G
- **House**, Steinkamp, for lease, No. Torrance, 6 mi. to Northrop, no pets, 3-bdrm., 1¼ bath, stove, d/washer, cpts., dps., f/place, enc. patio, bbq, \$265 mo. 213-329-6813. G
- **Condominium Apt**, P.V. Bay Club, 2 tennis sets, sauna, rec. & gym. fac., 2 Jacuzzis, 2-bdrm., 2 baths, 2 balconies, cpts., dps., bitins, \$375 mo. 213-641-5398. G

Hallicrafters Equipment Available At Discount

Hallicrafters radio equipment will be available to Northrop personnel through Personnel Activities outlets at greatly reduced prices.

Items available will be short-wave receiving equipment including the S-120A AM/FM shortwave receiver, the S-120 shortwave receiver, a five-band AM/FM portable with directional finder, and both table and portable models of a monitor receiver.

The models will be warehoused with the Electro-Mechanical Division in Anaheim. However, purchases are to be made through individual Personnel Activities offices at each division where literature and models will be available. Orders will be sent to Anaheim, processed immediately

and dispatched via United Parcel Service.

However, if purchasers expect to be in the Anaheim area, arrangements can be made to pick up the order.

A Personnel Activities spokesman said that warehousing the stock at Anaheim will permit filling orders within two days. This will eliminate long waits if orders had to be sent directly to the Hallicrafters factory in Chicago.

Although stock has been ordered in anticipation of Christmas orders, the shortwave equipment will be available on a continuing basis.

Hallicrafters, one of the most famous names in radio, is a wholly owned Northrop subsidiary.

EDITOR'S NOTEBOOK

We've reported a number of "firsts" in this column recently. Here's another. It might be called the first charter of a Pan Am Boeing 747 superjet, or better yet, the first occasion when the 747 has subbed for an ocean liner. Details were reported in the Pan Am employees' publication "The Clipper."

At 5 p.m. one recent Friday, just as the Pan Am reservations office in Paris was preparing to close for the weekend, a call came from the French Lines. A potential strike of personnel aboard the luxury liner S.S. France threatened to strand 800 passengers en route to New York. Could Pan Am help? By 9 p.m. the strike was on and plans in progress to handle passengers. On Saturday a chartered 747 flew from Paris to New York with 323 passengers, many elderly people who had never flown before, two dogs, several cats and some goldfish. The following day a second 747 picked up S.S. France passengers in Southampton, England, and flew them to New York. Mission accomplished.

* * *

As we went about putting together this, our final issue for 1970, News staff members began reflecting on the events of the past year. It is obvious that we enjoy many blessings.

High among them is the opportunity of moving freely among Northrop installations and people, to "rub elbows" with the world's finest individuals. From them have come tips and help in bringing our stories to life. We could not function without the support and encouragement of management, another blessing. Photographic personnel at all divisions continue to contribute immeasurably to our success, still another blessing. NRC officials, Personnel Activities personnel and our friends at Fashion Press, our printers, are a special blessing. There are others, many others, to whom we are indebted.

In the spirit of this most happy season we of Northrop News—Tony Cantafio, Ivy Edmonds, Rosemary Hussey, Peter Toll and Bryan Weickersheimer—say a heartfelt and sincere thank you. We hope you enjoy a very meaningful and relaxing holiday.

Rentals Offered

Houseboat, 45', twin Chrys., V-8 powered, sleeps 6, \$50 day or \$300 wk. 213-941-3804.

Child Care

Babysitting, my home, age 2-5 yrs., lge. fenced yd., breakfast & lunch, vicinity Compton Blvd. & Crenshaw Blvd. 213-532-8225. I

Personals

To our many friends at Northrop, my family & I wish to express our sincere thanks & appreciation for the nice cards & contributions in the loss of my husband. MARY YOCUM. L

We wish to express our sincere thanks to the many Northrop employees who extended their sympathy in the loss of our brother & son, Richard Schultz. ESTHER & RHODA SCHULTZ. L

Would appreciate any info. concerning 1965 CJ5 Jeep stolen in Redondo Bch., Nov. 29, license OTD 763, white body, white canvas top, roll & tow bars. 213-370-7749. L

Driving to Seattle, Wash., leave L.A. Sat a.m. Dec. 19, take 1 or 2 passengers, all or part way, share expenses. Box 2401. L

I wish to express my sincere gratitude to all those at Northrop who were so thoughtful & generous. It is wonderful to realize that so many remember us during times of injury & misfortune. JIM WILSON. L

Thanks to all my friends at Northrop for 30 yrs. of comradeship, the gifts & those who helped make my retirement day one I shall always remember. W. E. "BILL" SIMS. L

My sincere thanks to my Northrop friends for their thoughtful hospital visits, cards, flowers & gifts during my recent illness. "MICKEY" ST. MARTIN. L

Rides and Riders

Rides Wanted

7:30 a.m. — 4:12 p.m.

Near Florence or Manchester & Market, Inglewood. W. P. Stanyo, Mariposa ext. 6294, 213-673-2704.

Personals

Thanks to all my wonderful friends for the deluxe retirement party & the luggage that will come in so handy for the many trips we have planned. ROY A. PETERSON. L

Ironing, you del. & pick up, reasonable. 213-371-5075. L

I wish to express my gratitude to the many friends at Northrop for their kind expressions of sympathy during my recent stay in the hospital. A. R. GANDY. L

I would like to thank all my Northrop friends for the flowers & many cards sent during my illness. PAT CLEAVE. L

I sincerely appreciate the thoughtfulness, concern, & friendship expressed by many Northrop employees during my recent illness & recovery. JOHN SHANELEC. L

For Sale or Trade

Camera, 35mm Konica C-35 black body, \$50 or trade for darkroom or Nikon F equipment. 714-962-1143. M

Knitting Machine, Sears Orion, dble. bed w/instructions, 4 yrs. old, \$200 or trade for good used piano or bedroom set. 213-378-1405. M

Airplane, 1961 Cessna Skyhawk, 350 hrs. smoh, 1730 hrs. total time, Narco Mk. II & Mk. III, VOR equipped, other access., annual until Sept. '71, \$7,000 or trade in for clean, low time smoh or new, 1963 to 1966 Cessna 182 Skylane. 213-479-8972. M

Ford Camper, 1970 F250, \$3,100 take over \$2,750 bal. for trade of compact car. 213-835-0717. M

Special Christmastime Computer Work Creates Snoopy Calendars for Charity

Computer applications are many. And at the Ventura Division the Christmas season brings Northrop Data Processing computers into the area of charitable service.

NDP personnel are making 1971 calendars available for a 25-cent donation. Adorning the top of the 44-inch-high computer printout calendar is the cartoon character "Snoopy," complete with flying gear.

"Curse You, Red Baron" is the quotation under Snoopy as he shakes his fist at his imagined aerial opponent. Snoopy has a special significance to Ventura personnel because of his use by American astronauts, including the coveted Snoopy pin awarded for distinguished work on the Apollo Program.

Some 2,000 calendars were distributed by NDP personnel at Ventura last year. The \$500 in

donations was in turn donated, in the name of Venturans, to a Los Angeles children's hospital.

"While we don't expect to handle as many calendars this year, we do expect to turn over quite a few," explained Bill Higginbotham, operations supervisor for NDP at Ventura.

This year's money will be donated to the Ventura School for Girls, a special school for wayward teenagers.

Calendars will be available at NDP offices in the Engineering building until the beginning of the yearend holiday, Mr. Higginbotham noted. There is no limit to volume.



MANAGEMENT CLUB OFFICERS READY FOR 1971
From left, Doug Finch, Mary Clerico, Jim Johnson, Marilyn Wilson, Warren Clymer, President George Bostater, Dave Coe, Bob Prieve, Jack Moeller and Dick Tupper.

Class to Teach GPSS Techniques For Computers

Looking for ways to demonstrate or verify new ideas, examine and compare alternatives, establish test hypotheses, design systems or train personnel?

If so, then a formal introductory course on the General Purpose Simulation System (GPSS) computer programming language to be offered by Ventura's Economic Analysis staff is the answer.

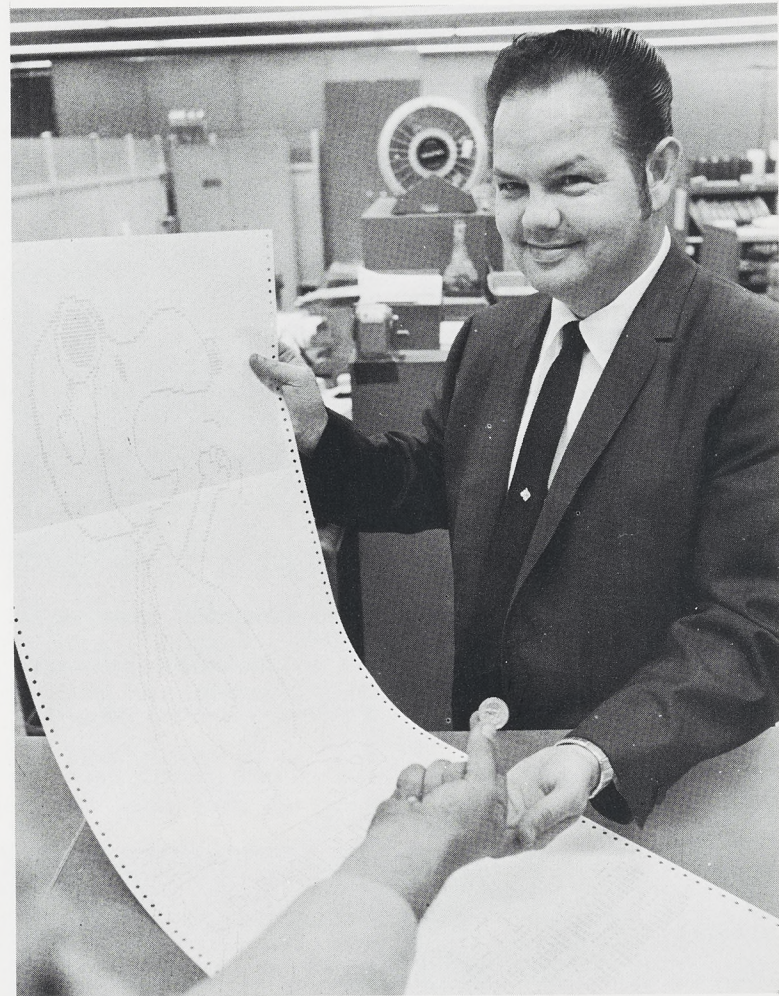
"GPSS is an extremely powerful simulation language which can provide an effective means of testing and evaluating a proposed system under various conditions in a laboratory environment," explained Ivan Blum. He will instruct the course.

Simulations through a computer permits measurements and the study of various situations without the need for elaborate expensive, and time-consuming "real-time" efforts. The computer, then, can be especially valuable to engineering, production and management science.

Personnel interested in participating should possess a basic mathematical aptitude and skill through algebra. Previous computer experience is not necessary, Mr. Blum added.

First class is scheduled to meet Jan. 19 in the Administration Assembly Room. Subsequent meetings will take place Tuesdays and Thursdays from 8:30-10 a.m.

Registrants are urged to contact Frank Lund, manager of Personnel, at ext. 441 before the yearend holiday.



ANOTHER DONATION FOR SNOOPY
Bill Higginbotham gives Snoopy calendar to another donor.

Management Club Slate Set

George Bostater leads a new slate of officers who will take the reins of the Ventura Division Management Club on Jan. 1.

Mr. Bostater, a manager in Contract Pricing and Estimating, was elected president of the group in recent elections. New vice presidents are Dick Tupper (first) and Dave Coe (second).

Mary Clerico was elected secretary and Bob Prieve will be the treasurer. New directors are Doug Finch, Vince Gurley and Jack Moeller.

Directors serve two-year terms and the other officers are on the job one year. Holdover directors are Marilyn Wilson, Jimmy Johnson and Warren Clymer.

COUNTY MAYORS TOUR FACILITY

Mayors from six Ventura County cities recently toured the Ventura Division as part of the ongoing Northrop community relations program in Ventura County.

The guests were greeted and welcomed by General Manager Welko E. Gasich. They were briefed by George Grogan, vice president of Production Development, on Northrop and Ventura Division activities and capabilities.

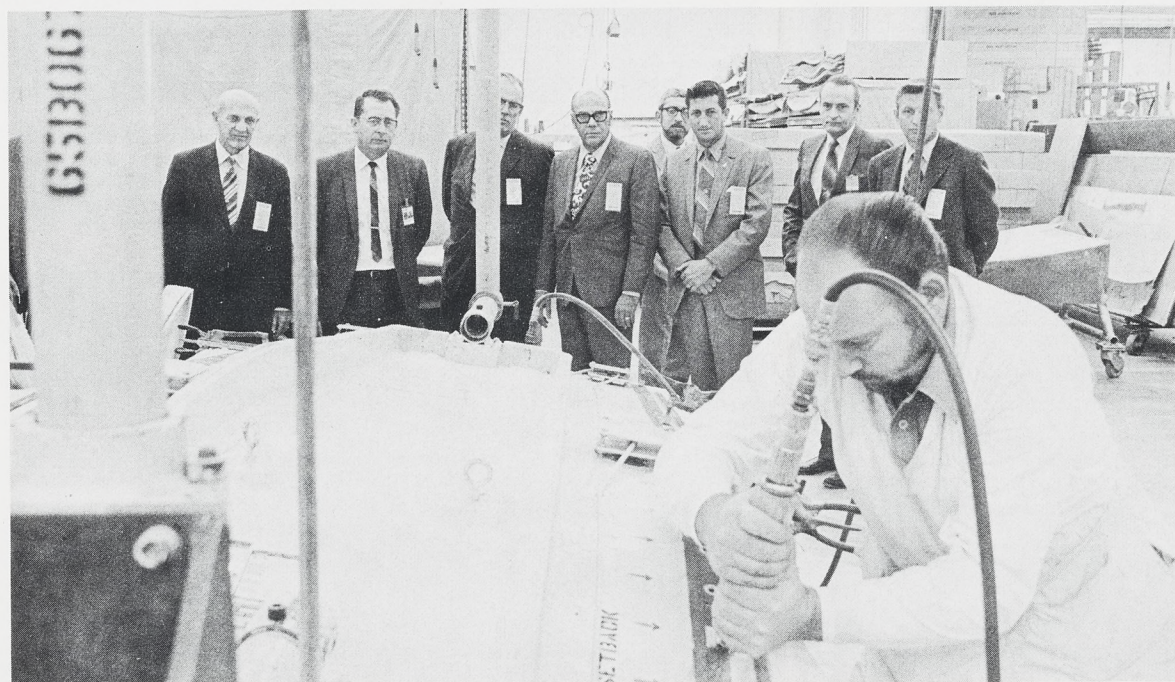
After the briefing they toured the facility with John Evans, vice president of Production Operations and Bill Kearney, manager of Production. Ending the tour

was a luncheon with company officials.

Participating civic leaders included:

Mayors Charles Cohen of Thousand Oaks, Al Albinger of Ventura, William Burr, Jr. of Ojai, Fred Bryce of Fillmore, Ray Prueter of Port Hueneme and Camarillo Vice Mayor Donald E. Livingston.

Other recent visitors at Ventura have included Congressman Charles M. Teague. The members of the Ventura County Board of Supervisors were also guests of the Management Club recently.



MAYORS WATCH HARVEY BERRY ROUTE A 747 PART
From left, Fillmore's Fred Bryce, Bill Kearney, Ventura's Al Albinger, Port Hueneme's Ray Prueter, Thousand Oaks' Charles Cohen, Camarillo's Don Livingston, John Evans and Ojai's William Burr, Jr.

Australian 'Ladies College' On Miss Youngers' Agenda

The new year is going to bring excitement and a host of new experiences to the 16-year-old daughter of the Ventura Division's D.A. (Dutch) Youngers.



Kathy Youngers

Miss Youngers leaves in February to spend 10 months as a student at Methodist Ladies College in Melbourne, Australia.

The idea of spending nearly a year in Australia began when Mr. Youngers' sister-in-law, a Melbourne resident, visited the

Youngers home in Thousand Oaks. Miss Youngers will stay with her aunt and uncle while going to school.

And school life will be quite a bit different than the fare she is used to at Thousand Oaks High School.

No Men Allowed

The Methodist Ladies College is strictly for young ladies; no men allowed. "And they have to wear uniforms," noted Miss Youngers. She said the school's enrollment is near that of Thousand Oaks High's 2,000 students.

She will pursue her interests in business and science courses, although she's not yet certain which field interests her the most.

Miss Youngers is a teenager of many interests. She is a co-leader of 9-10-year-old Camp Fire Girls, plays the piano, enjoys gymnastics and tennis and also handcrafts.

CHRISTMAS TURKEY

Hobby Turns Into Dinner

Not very many Northrop people can say that when they sit down to Christmas dinner they're going to eat a bird they've seen raised from a chick.

Well, Bob Kraatz, a facilities engineer at Ventura, can properly make that claim.

His daughter, Susan, 17, has been raising animals with the 4-H Club for the past six years. Included in her hobby are plump tom turkeys from 24 to 30 pounds in weight.

"I raised two this year," Miss Kraatz told the Northrop News. "We'll have one on Christmas and give the other to a needy family."

But turkeys are only a sideline for the recent Camarillo High School graduate. Her main interest in agribusiness is raising Black Angus steers for show.

She recently won several ribbons at the Ventura County fair for showmanship displaying her steer.

An eight-year resident of the rural Santa Rosa Valley near Thousand Oaks, the Kraatz family has strong interests in farm animals.

Father Bob is a weekend cowboy with several head of cattle. A son, Michael, was active in Future Farmers of America and Susan enjoys animals, too.

She has also raised sheep, pigs, and raccoons along with the beef, turkeys and some horses.

Miss Kraatz plans to enter Moorpark College in January and then visit Europe next summer. Maybe her father will take care of the livestock when she is abroad.

NORTHROP NEWS

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THREE RECEIVE PINS FROM MR. GASICH REPRESENTING 85 NORTHROP YEARS
Bob Spies, left, and Dick Warner, each received 30-year pins in December as Jack Lind, right, got a 25-year emblem in November.



Round File Program Is Big Success

Did you ever clean out that half-forgotten closet and come up with nearly twice the amount of material you expected to find?

Well that's what happened at the Ventura Division as Operation Round File aimed at uncovering \$50,000 in hidden costs and surpassed the goal by nearly \$40,000.

Operation Round File is an annual program designed to reduce costs with emphasis on every day expenses such as office supplies, records, manuals, forms, reports and administrative paper work.

The program is conducted by the Business Systems and Contract Accounting section of the Financial Management department. This year Dick Tupper served as program coordinator.

"We thought \$50,000 was a challenging figure for a target," explained John D. C. Roach, manager of Business Systems and Contract Accounting. "The savings of \$89,179 reflected a very conscientious effort on behalf of every department," Mr. Roach noted. On the average, each department achieved 178 per cent of the target.

The Executive and Product Development departments produced five times as much savings as their combined target while Support Operations tripled its target requirement.

Engineering came in with the largest dollar figure and Production Operations was next as all departments exceeded their savings goals.

Here is the breakdown for each department:

Engineering: target, \$25,000; realized, \$36,297; per cent achievement, 145. Executive and Product Development departments: target \$3,000; \$14,995, 500 per cent.

Financial Management: \$3,000 target, \$3,384, 112 per cent. Production Operations: \$16,000 target, \$25,415, 159 per cent. Support Operations: \$3,000 target, \$9,088, 303 per cent.

Spies, Warner Mark 30 Years With Northrop

Heading into their 31st year with the Northrop Corporation are Ventura's Robert (Bob) Spies and Richard M. (Dick) Warner.

They joined Northrop in December of 1940 to head the December list of service pin recipients which includes two women with 20 years of service each and five people with 15 years. Jack Lind, a scheduler, received a 25-year pin in November.

Mr. Spies began as a sheet metal worker on the first Northrop plane, the N-3PB. "After that it was all in experimental work" including development of the turbo-prop engine, he recalls.

In 1951 he went to Holloman AFB, New Mexico, with the Snark and to then-Cape Canaveral with the same missile.

Mr. Spies took his telemetry and instrumentation experience to the Ventura Division in 1953. He became an overseas field representative assigned to target drones in 1960 and has been at it ever since.

As a confirmed bachelor, he enjoys the travel. He has represented Northrop in Taiwan, Japan, Okinawa, Hawaii and Korea. Around the world five times, his current assignment is in the Middle East.

Mr. Warner has also traveled considerably under the Northrop banner.

As a 21-year-old final assembly

mechanic on the N-3PB he went to Lake Elsinore for test flights and after working on a Vultee-designed dive bomber went to Muroc Dry Lake (now Edwards AFB) with the Flying Wing prototypes.

Before long, though, he had to pack more suitcases. As a Customer Field Service representative in 1944, Mr. Warner followed the P-61 to Dayton, Ohio, and then supervised loading of the birds aboard ships in the Newark,

N.J. harbor headed for England and the war.

After the war the P-61 took him to Japan and the Philippines as well as Alaska. He also served in New Mexico and Florida with the Snark as well as Presque Isle, Maine.

Mr. Warner spent some time in Rapid City, S.D. on a Northrop project with the Titan missile site activation before transferring to the Ventura Division in February 1963.

Venturans Head for Crete, Ready NAMFI Operations

Ventura personnel are starting to set up shop on the island of Crete for complete aerial target operation service at the NATO Missile Firing Installation (NAMFI) in the Mediterranean.

Program Manager Ralph Friesen heads a five-man Northrop team which will serve as the nucleus for Ventura operations.

Mr. Friesen is already on Crete with Les Shaw, supervisor of Tracking and Control. Joining them soon will be Don Conlan, deputy manager

and chief engineer and Jean DePue, Quality Control.

The \$7.9 million program utilizes the Chukar or MQM-74A target drone.

The three-year contract was awarded by the Greek government on behalf of the NATO nations using the range to train their anti-aircraft missile crews. These nations include Germany, The Netherlands, Belgium and Greece, as well as the United States.

He was named manager of a wholly owned subsidiary, Aero Instruments, of North Hollywood and then in 1966, when the firm was sold, became manufacturing product manager for aeronautical systems at Ventura, a job he holds today.

Staying closer to home for their 20 years with Northrop have been Mary McDaniels, a target drone assembler, and Barbara Dukes, a precision inspector in Vendor Control.

Marking 15 years with the company in December were Tony Viano, Machine Shop; Paul Stewart, Plastics Fabrication; John Findley, Vendor Control; Margaret (Miggs) Ruggiero, Quality Engineering; and Henry (Jack) Lee, a product coordinator.

Aaron Feder, of the B-52 Decoy program office, was the single 10-year pin recipient in December. Receiving a five-year pin was Marian Huddleston, secretary to John D. C. Roach.



Miss McDaniels



Mr. Friesen

TO BUILD PROTOTYPES

Northrop Chosen for A-X

Northrop Corporation is one of two aerospace firms selected to participate in the competitive prototype development phase of the A-X specialized close air support aircraft program.

Each company will build two prototype aircraft for flight test. On the basis of a competitive "fly-off" and evaluation of the contractors' proposals submitted for full scale development and acquisition, a decision will be made on whether to proceed with production of the aircraft.

If approved for production,

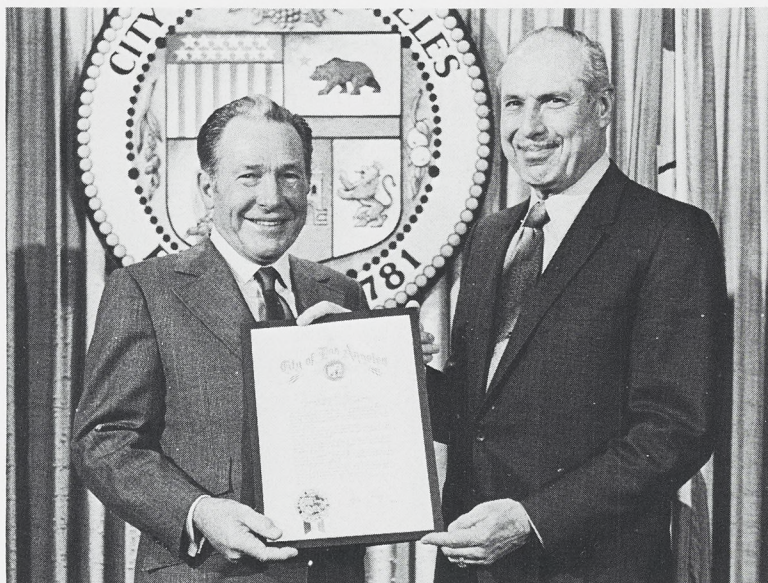
the A-X will be a rugged, twin-engine, single-place aircraft with short takeoff and landing capabilities and excellent maneuverability. It will carry varied payloads and be capable of long loiter time over target areas. The first Air Force aircraft planned from the start with high survivability against enemy ground fire as a primary objective, the A-X would be used in close support of troops in the field.

Work on the A-X program will center at the Aircraft Division.



'OPERATION ROUND FILE' REAPS SURPLUS
Bernie Sklar checks returned supplies in photo using unique "fisheye" lens.

Honors for Bob Catlin



ROBERT S. CATLIN, right, Northrop's "senior" employee in service years (more than 31 years), retired recently after receiving numerous honors. He is shown above with Los Angeles Mayor Sam Yorty who recognized him as a "native son" who had devoted more than 42 years to the aerospace industry. More than 300 well-wishers, including Northrop friends and elected officials, gathered to honor him on his final day of work.

Merit Scholarships for Sons, Daughters Pledged

College scholarships for the sons and daughters of Northrop employees will once again be sponsored by Northrop Corporation through its participation in the National Merit Scholarship Corporation (NMSC) program.

Dr. Donald A. Hicks, Northrop vice president — Research and Technology and chairman of the Northrop University Relations Advisory board which administers Northrop participation, reminded high school students, and their parents, this week of steps that must be taken soon to be eligible for participation in the program.

Northrop scholars, selected from eligible sons and daughters, are ultimately chosen by the NMSC on the basis of scholastic aptitude, leadership, and good citizenship as determined by testing and other procedures established by NMSC.

All children, natural or legally adopted, of regular employees as well as the children of retired or deceased employees are eligible.

Eligible students must take the NMSC qualifying test when they are second semester juniors in high school. This test is made available to high school principals across the United States. Candidates must make test arrangements during the fall semester of their junior year. NMSC qualifying tests are now scheduled to be given Saturday, Feb. 13 or Tuesday, Feb. 16 of this year.

The test does not require special study or preparation. It is based primarily upon an understanding of, and the ability to use, what is learned, rather than on sheer knowledge of facts. Semi-finalists are selected and asked to take another examination.

High-scoring candidates will be told in January or February of their senior year that they have become finalists as a result of their test performance.

Professional evaluation by an impartial committee of educators will determine winners.

Each scholarship is a four-year award, called a stipend. It will be based on the family financial circumstances and the cost of attending the college selected. Northrop scholarships will vary be-

tween \$250 (minimum amount in cases when no financial help is necessary) to the upper limit of \$1,500 each year.

Additional information on the total NMSC program is available through Lee R. Thornton, ext. 394, Corporate office.



Martina Peterson

Reward Offered For Information On Missing Girl

Northrop Corporation has announced the posting of a \$1,000 reward for information leading to the discovery of Martina Peterson, 11, missing in the Twin Peaks, Arrowhead Highlands area of the San Bernardino Mountains since Dec. 29.

Martina's father, Joseph A. Peterson, is an engineering specialist at the Electro-Mechanical Division in Anaheim.

Persons having information regarding Martina should contact the San Bernardino Sheriff's office, according to Frank W. Lynch, Northrop vice president and general manager of the division.

"This is a great human tragedy and we are doing everything we can to encourage everyone who may possibly be able to help, to assist in returning Martina to her family," Mr. Lynch said.

Any person having information regarding her whereabouts is urged to call Lt. Kenneth Blackwell or Sgt. O. M. Gray, San Bernardino Sheriff's office (714) 885-0757.

Flight Tests With First Graphite Composite Component Successful

Northrop Corporation has successfully completed a flight test program of the first complex structural graphite composite part ever to be flown—a main landing gear door of the F-5 tactical fighter.

Results of the tests revealed that the lightweight graphite door performed as well or better than the current aluminum production door. The company-sponsored tests were conducted aboard an F-5 flown from Edwards AFB.

"Data from the instrumented test flights showed that deflections of the graphite door due to negative air-load were within tolerable limits at all critical points along the forward edge of the door," said Robert D. Hayes, manager of Northrop's graphite composite structures program.

Graphite composite is made by converting a precursor material, usually polyacrylonitrile fiber, under intense heat into graphite and bonding the fibers together with tough industrial glues such as epoxys and polyimides. Successive stacking of sheets of this material, followed by the application of heat and pressure, enables forming of the material into structural components.

The main landing gear door, which measures 30 by 40 inches, is a honeycomb sandwich structure with graphite composite inner and outer skins. It weighs 36 per cent less than the 17.5 pound all-aluminum door, yet is comparable in both strength and stiffness to the aluminum structure.

Mr. Hayes said that while graphite filaments cost about \$250 a pound today, increased production of the filaments will eventually reduce the price to about \$20-\$30 per pound, which is competitive with metals, in view

of the weight advantages offered by graphite composites.

Northrop has long been a leader in the development of composite materials. In 1967, the company was among the first manufacturers to produce and flight test a similar landing gear door made with boron epoxy laminates. Two years ago, Northrop became the first company to design and fly an airframe component made of graphite composite — a leading edge wing tip.

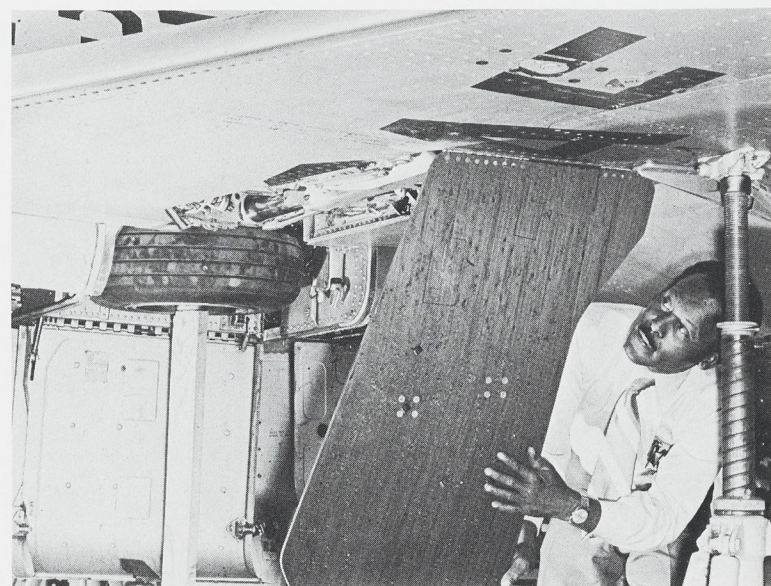
In April 1969, Northrop was selected for a \$3.4 million contract by the Air Force Materials Laboratory, to develop flight-worthy graphite structures. This three-year program calls for sequential fabrication and ground testing of increasingly complex structural components.

The main landing gear door

was the first component to be produced under this contract. Other components include a speed brake, leading edge flap, horizontal stabilizer and vertical stabilizer. All components are interchangeable with existing parts on the Northrop F-5 and will be designed to the same loads and service life conditions.

Air Force Materials Laboratory officials predict that "in the long run, composite assembly fabrication cost and reliability will be a major advantage for composites" over metals.

Northrop engineers predict that only a 15 per cent reduction in total structural weight would enable a typical high-performance military jet to fly up to 10 per cent further or carry 30 per cent more payload using the same amount of fuel.



FIRST COMPLEX GRAPHITE COMPOSITE PART FLOWN
Northrop's Ernie Hall looks over landing gear door on F-5 fighter.

Credit Union Sets More Liberal Loan Policies, Extends Membership Rights

Approval of more liberal loan policies and the extension of membership privileges to certain employees leaving Northrop due to a reduction in work forces have been voted by the board of directors of the Northrop Credit Union.

Loans for new autos are typical of the new policies approved by the board. Borrowers may now obtain 75 per cent of the selling price of new cars (previously it was 70 per cent) on loans for 36 months and 85 per cent (up from 75 per cent) on loans for a period of 30 months.

And for used autos the percentage of Blue Book changes include 100 per cent of the wholesale value of current year (1971) models for 36-month loans 100 per cent the wholesale value

amount for one year old models for 30-month loans. The percentage drops progressively for each year older the automobile covered is.

In mobile homes used models up to six years old may be covered via Credit Union loans. Home improvement loans may now be obtained for up to \$5,000 (it was \$3,000). And personal loans meeting certain requirements may be obtained for as much as \$2,500, up from \$1,000.

Employees with five years or more of seniority who are leaving the company due to work force reductions may now retain their Credit Union membership.

Further information is available through the Credit Union or any of its representatives.

James E. Ware NAS President

Appointment of James E. Ware as president of Northrop Architectural Systems, a wholly owned Northrop subsidiary, has been announced by President Thomas V. Jones.

Mr. Ware, a graduate of Stevens Institute of Technology with a degree in mechanical engineering, brings to the company more than 20 years' experience as a successful manager in companies specializing in providing materials and services to the construction industry.



Mr. Ware

BENEFACTS REPORT DUE BIANNUALLY

Plans for the issuance of Northrop employees' Benefacts Report, a report on the status of accrued fringe benefits with projections to possible retirement dates, on a biannual basis have been announced by Frank Smith, Corporate director of Industrial Relations.

The initial Benefacts Report, issued in the fall of 1969, proved extremely popular with employees. Recently, employees have inquired as to the next issuance date for the report.

"After careful analysis of the changes which would occur in each individual employee's major benefit package, it was deter-

mined that the changes were not major from year to year, and the employee could still be apprised in the event any major changes occurred. Also, since the changes were so slight we felt that in the interest of cost reduction we could still serve the best interest of the employee by issuing the report biannually," Mr. Smith said.

Employees preparing for retirement should meet with the retirement counselor at their division to discuss benefit changes which might occur before the next Benefacts Report is issued, now scheduled for the fall of 1971, Mr. Smith added.

NEW DIVIDEND

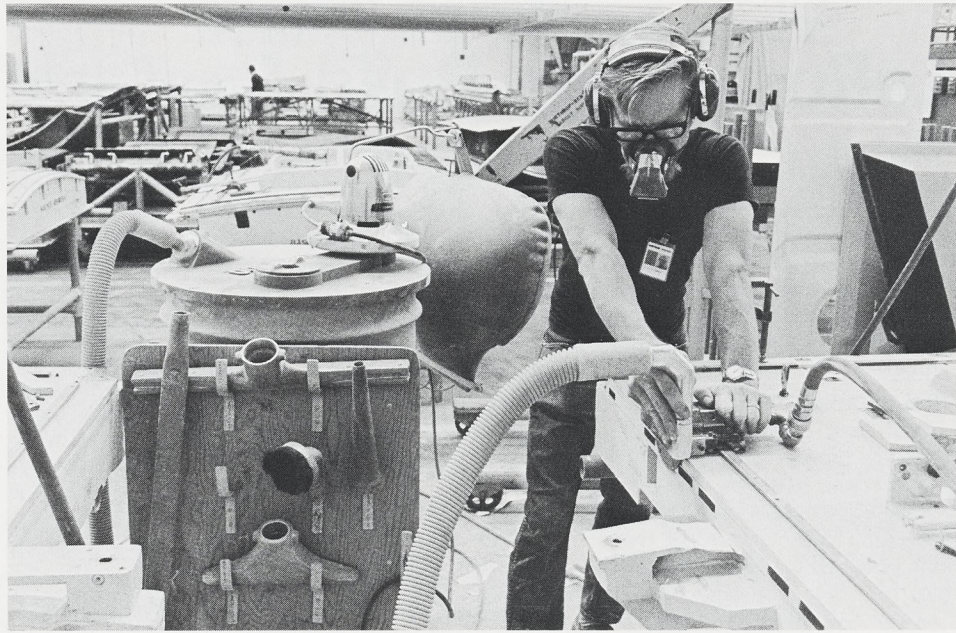
A dividend of 6½ per cent (per annum rate) has been declared by the board of directors of the Northrop Credit Union at its first meeting of 1971.

Credit Union shareholders on record Nov. 30, 1970, will receive the dividend which was posted in accounts on Jan. 1, 1971. The Credit Union now pays dividends on a semi-annual basis when applicable with posting dates of Jan. 1 and June 30 of each year.

The Northrop Credit Union's 25th annual shareholders meeting is now set for 5 p.m. Tuesday, Feb. 2 at the Aircraft Division.



SPECIAL SAW REDUCES DUST LEVELS
Jesus Tavera operates saw cutting bevel in pre-preg 747 material.



MANY PRECAUTIONS AGAINST FINE DUST
Ken Erwin's trimming saw is equipped with special vacuum attachments.

New Techniques Require Special Measures At Ventura

(Editor's Note: This is the third in a series of articles dealing with Northrop's ongoing efforts at preservation of the environment in day-to-day operations.)

Northrop's Ventura Division in the Ventura County community of Newbury Park is a unique operation when it comes to so-called industrial pollution.

While Ventura deals with solvents, paints and degreasers which are common to most other Northrop divisions, it is different in a major respect—one-third of its Production Operations effort involves reinforced fiberglass.

Ventura produces the wing-to-body fairings for the Boeing 747. The fiberglass fairings offer strength and low weight — they also present new problems in production techniques.

The main problem is a fine, chalk-like dust which is produced in routing, trimming or drilling the fiberglass. This could present a problem to the environment outside and it is a problem to personnel who have to work in the situation.

"We've found the best way, so far, to protect the employee is to provide special vacuum tools and benches which suck the dust up as fast as it is produced — at

the source," explained Clyde Corder, a Facilities engineer of 15 years at Ventura. These techniques are used wherever they can be integrated with the particular work effort.

"Combined with a special face mask and, when necessary, ear covers when the noise levels are too high, the employee is fully protected," he said.

No Dust Here

Known as "tool collectors," the special vacuums also inhibit the otherwise free-flying dust in the "soft tooling" area. To further whip the problem a special soft tooling room is being designed which will offer a major air flow control and collection system to keep dust levels at a minimum.

It is this air flow concept which helps make another 747 work area, again unique, very safe to personnel.

A Ventura-devised production method calls for coating the tooling with a thin layer of plastic and then spraying it with molten aluminum before the reinforced plastic fairing part is laminated to it.

Then when the layed-up reinforced fiberglass is cured in the autoclave it comes out already coated as the aluminum transfers

from the tool to the part. Sort of a "paint the part before you make it" operation.

This aluminum spray painting is done in a standard three-sided spray paint booth. At one end is a waterfall-like curtain and at the other is a concentrated air flow. The spray painter is in the middle and the air pushes all the excess vapor into the fast-flowing water where it is trapped.

The sludge which is created both in the aluminum paint booth and the booths used to paint Ventura's aerial target drones would definitely be a pollutant if it were dumped into the public sewage system.

But this waste material is stored and then hauled away by a contractor. He disposes of it in a special state and county-licensed landfill dump.

Taking The Lead

Ventura has always been a pollution-control leader in Ventura County.

When the plant was built in 1962 (doors opened in January 1963) it was the first of its kind in the county. "Ventura County had always been mostly agricultural," Mr. Corder explained. "It had very few pollution ordinances."

County officials became concerned that the plant might produce Los Angeles-like smog. "But we built our plant along the lines of the Los Angeles Air Pollution Control District regulations," Mr. Corder said.

Encouraged by Northrop's attitude, county officials soon wrote their own air pollution control codes which, as it turns out, are pretty much patterned after the Ventura Division plant.

But the county is just one agency which industry must deal with. There are state and federal controls, too.

Also keeping all of the industries in the Rancho Conejo Industrial Park on their toes is a

jointly sponsored program of self-policing. All the industries contribute to retain a firm which monitors for possible pollution.

"They maintain regular surveillance on the sewer mains leading to the treatment plant," Mr. Corder said. If any manufacturer is inadvertently putting the wrong chemicals into the public mains he is quickly corrected by his peers.

Industry may have a black eye as far as pollution is concerned. But at the Ventura Division, pollution control is the rule and not the exception. And it has always been that way.

(Next: The Electro-Mechanical Division maintains its own style of vigilance in Orange County.)

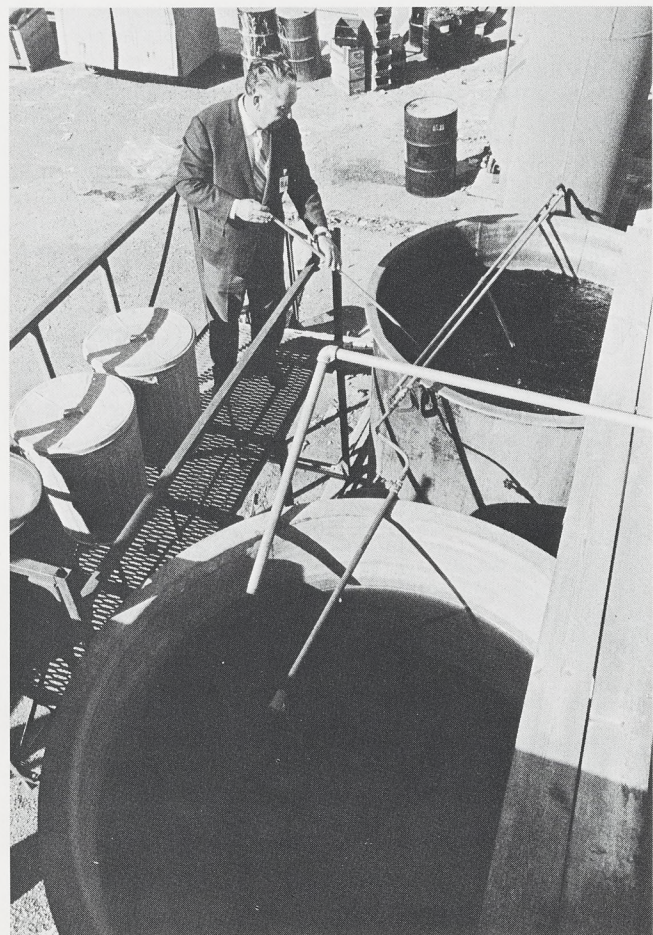
Jones on Pollution Council

Northrop President Thomas V. Jones has been named a member of the Airlines and Aircraft Subcommittee of the National Industrial Pollution Control Council.

President Nixon has charged the NIPCC with enlisting support from business and industry in the drive to reduce pollution in all its forms to the minimum limit possible.

As one of the industry leaders, Mr. Jones is part of a team seeking Voluntary Action Commitments from firms pledged to attacking the pollution problem.

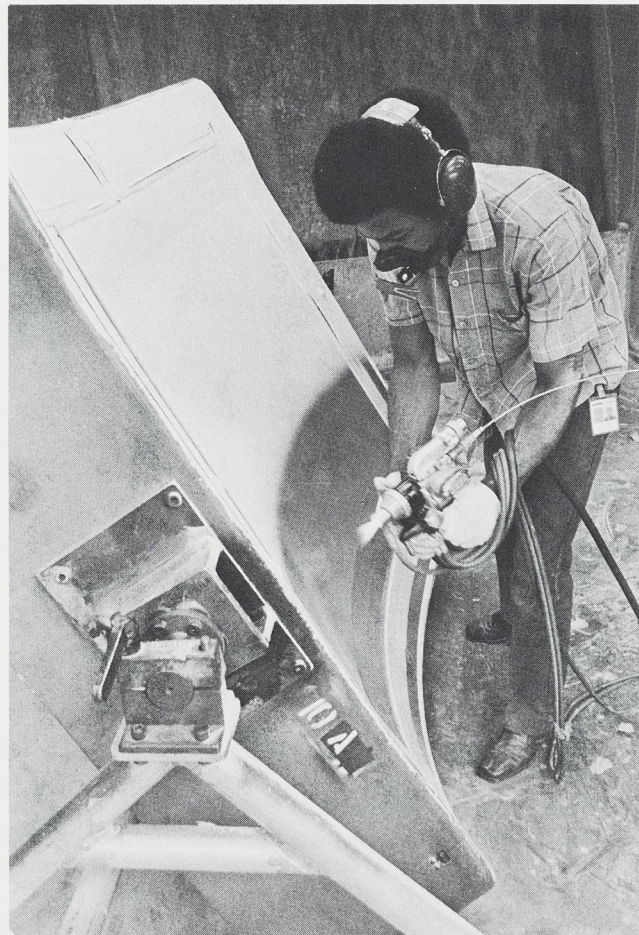
Once the pollution control goals are established, council members will report to the Department of Commerce on existing control programs as well as future commitments.



CLYDE CORDER CHECKS WASTE CHEMICALS
Before vendor hauls away to state-licensed disposal site.



VACUUM BAGS PULL DUST DOWN
Terry Baker sands plastic F-5 and T-38 inlet ducts.



MOLTEN ALUMINUM SPRAYED ONTO TOOL
Water wash booth traps vapors, protecting Frank Koontz.

WORKING TOGETHER

LeRoux Boys Build Custom Bikes

When Vic LeRoux, Tooling Inspection, and his son, Vic, Jr. bought their latest motorcycle, they had to carry the pieces home in a box. Now six months, hundreds of work hours and \$2,000 later they have a gleaming chrome beauty that is valued at \$4,000.

The LeRoux—father and son—have been working together rebuilding motor vehicles for the past 12 years. It began when Vic, Jr. was eight years old and his father built him an electric run-about powered by a Ford starter motor run by a storage battery.

As the boy grew older, the vehicles increased in size and speed. They went first to Karts powered by a lawnmower engine and then moved up to racing Go-Karts which they raced for three years at the Monza speedway. Next the LeRoux turned to rebuilding and restoring cars for automobile shows. Their 1957 Nomad has won a top class trophy.

Later, when Vic, Jr. wanted a motorcycle, his father bought one also, so the two could make desert rides together. This led them

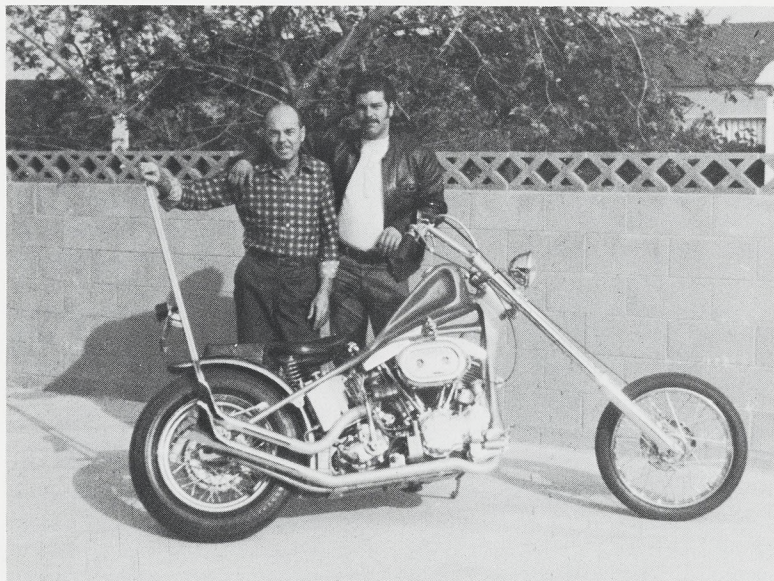
into restoring what Vic calls "old hulks." Their first purchase was a 1946 model Harley Davidson. Everything was stripped to the frame, remolded, and rebuilt. Then they put as many as 60 coats of handrubbed paint to finish the job. In addition each rebuild job takes about \$600 in chrome, and on their latest job—a rebuilt '57 Harley—they put \$60 just into the seat upholstery alone.

Personalized

Fancy exhaust pipes, customized seats, chrome on every removable part, and specialized wheels all add up to complete personalization of each bike they rebuild.

The result is that no two are ever alike. The extent of their work to get exactly what they want is shown by the front wheel on the current model.

They wanted a smaller rim than the Harley provides. This they found on a Triumph, but then they removed the spokes from the larger model, cut them down, rechromed them and inserted them in the smaller rim.



THIS BEAUTY VALUED AT \$4,000
Vic and Vic, Jr. LeRoux have shared unusual hobby for 12 years.

At the same time everything going back into the machine was re-evaluated for safety.

"We go strong for good welding, safety wire, and cotter pins," Vic said. "Nothing that we build is going to fall to pieces."

Mr. LeRoux has been working with cars himself since he was 14, and for years specialized in racers and sports cars. Later he was one of the founders of the NRC Sports Car Club here.

"One thing I've learned is that when you are in a garage doing something you haven't time to get into trouble," Mr. LeRoux said. "That is why I've encouraged my son to work with me."

The younger LeRoux worked summers with Northrop. His last job was in the Plant III Tool Crib.

MAGIC KINGDOM
CARDS AVAILABLE

New Disneyland Magic Kingdom Club membership cards, good for the remainder of 1971, are now available to Northrop employees at all Personnel Activities outlets.

With the cards Northrop families may buy special discount Magic Key Books good for all attractions at Disneyland, receive discount rates at Disneyland Hotel and its Golf Centre and be eligible for consideration as the club's "Family of the Month."

GLOBETROTTERS

Northrop Recreation Club has obtained a block of special discount tickets for the 2 p.m. Jan. 31 appearance of the famed Harlem Globetrotters at The Forum, Inglewood.

Personnel Activities outlets are offering reserved seats regularly selling for \$6.25 for \$5.25 and \$5.25 seats for \$4.25 as long as the supply lasts.



CALIFORNIA CURLING CHAMPS

From left, Wayne Asplund, Don Miller, Northrop's Mike Sulentic, John Connor, M.D.

Mike Sulentic A Champion
In Wintery Sport of Curling

Looking for a family sport in which you can get involved with your teenagers? Mike Sulentic, an Aircraft Division Facilities engineer, has the answer.

Curling. Yes, even in California, this ice sport is growing in popularity. Because of the sunny climate, though, it is played on indoor rinks.

"Curling is played by two teams of four who try to slide two heavy (42½ lb.) granite 'stones' down an ice-strip so they land as close as possible to the center of the 'house' or target circle at the other end," Mr. Sulentic explained.

Basically similar to shuffleboard, in that you try to knock the other player's stones out of scoring position, the sport is highlighted by frantic sweeping.

"The sweeping, with short

brooms, helps control the direction the stone is going as well as giving it added distance," Mr. Sulentic said.

Equally important, though, is the skill required to control the rotation, direction and distance of the flattened sphere. The stone is 14 inches in diameter and 6 inches high. A handle is used to propel the stone.

Mr. Sulentic is not only an enthusiast, he is also skilled at the finer points of the game.

He was a member of a team which represented the Granite Curling Club of Norwalk and won the state championship last year sending the Northrop man and his teammates to the nationals at St. Andrews Golf Club in New York.

Trying Again

Although the West Coast champs didn't bring home any prizes, they're looking forward to this year's competition.

"Our Granite Curling Club is hosting this year's state championships Feb. 5-6 on the Norwalk rink," Mr. Sulentic noted.

He is president of the 40-player club, secretary of the California Curling Assn. and a director of the national U.S. Men's Curling Assn. There are 8,000 organized curlers in the country.

Curling is a family sport if your offspring are big enough to handle the stone and the vigorous sweeping exercises, Mr. Sulentic said.

Northrop personnel interested in joining Mr. Sulentic in curling are urged to contact him at ext. 1761.

HABBLETT PICKED

William H. Habblett, special assistant to Northrop President Thomas V. Jones, has been named president of the Beverly Hills Council of the Navy League.

Mr. Habblett stepped up from his role as executive vice president of the council upon the death of its president, Donald D. Stone.

A lieutenant colonel, U.S. Army Reserve (ret.), who served in both World War II and the Korean War, Mr. Habblett has been with Northrop since 1959. He is also chairman of the Southern California Aerospace Coordinating Council.

WE ASKED THEM—How Do You Feel About The Trend to Lower Hemlines?

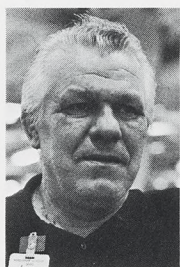


Lee Peet, major proposal estimator, Electronics:

The mini reduces office efficiency of the male employee and the maxi looks like a housecoat. I just don't know. A sensible length would be one inch above or below the knee, depending upon the type of leg.

Joanie Garfield, secretary, Ventura:

I think it's atrocious and very unfeminine and very uncomplimentary to women of all ages.



E. H. Hyatt, tool crib attendant, Aircraft:

Forget it. Keep hemlines where they are now. There is nothing wrong with a pretty leg attractively displayed. Long skirts put a girl at a disadvantage. I cast one vote for short skirts.

Myrna Fanzlaw, secretary, Electro-Mechanical:

The midi is most unflattering to a lady, I think. Also, the shorter skirt gives you more freedom of movement. I don't like the trend to lower hemlines.

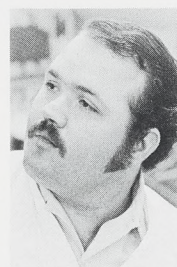


Bonnie Neal, typist, Electronics:

I don't like it. I'd rather see them high or low—anything but the midi. A good compromise in office apparel would be the pants suit.

Bob Sperry, spray painter, Ventura:

Actually, it depends on who is wearing them. But generally speaking I'd have to say that I definitely like the shorter skirts better. Ankles offer too limited an appeal.



Pearl Dicken, structural mechanic, Aircraft:

I don't like it at all. I think shorter skirts are more comfortable to wear and certainly more feminine. Every girl should try to look her best at all times. Short skirts should be a big part of any wardrobe.

Robert Collins, Opto-Assembly, Electro-Mechanical:

I'm afraid to answer. The ladies will condemn me if I say yes, and condemn me if I say no. I'll keep my mouth shut.



Classified

Classified ad service is provided free of charge to all Northrop personnel. Ads for agencies, commercial enterprises and private businesses are not accepted. The Northrop News reserves the right to edit or omit ads. Obtain ad form C67 from organization clerk and mail ad to Northrop News, 170, zone 62. Ads are limited to one item and one ad per person each issue. Deadline is noon Wednesday, one week before publication.

Automobiles For Sale

Pontiac, 1967 Bonneville h/top, a/c, all power access., \$1,375. 213-372-8903. A
MG-TD, 1951, 80% restored, spare eng. & trans., \$1,200. 714-528-6833. A
Station Wagon, 1962 Ambassador, 9-pass., p/b, auto. trans., \$300. 213-532-4287. A
Volkswagen, 1961, r/h, good tires, \$350. 714-774-9920. A
Fiat, 1969 Gold 850 Spyder, new glass tires, \$1,600. 213-377-7670. A
Ford, 1959 Galaxie 500, 332 eng., auto., r/h, \$300. 213-860-8476. A
Pontiac, 1962 Grand Prix, \$450. 213-532-8462. A
Dodge, 1967 Coronet, \$1,200. 213-888-8890. A
Datsun, 1964, convt., 36,000 mi., \$700. 213-439-6432. A
Ford, Fairlane 500, h/top, 8 cyl., auto. trans., a/c, r/h, shock lift, trailer hitch, \$2,200. 213-254-5682. A
Chevrolet, 1965 Impala SS, 2-dr., a/c, p/s, p/b, \$1,250. 213-644-4307. A
Volkswagen, 1969, radial tires, radio, \$1,495. 213-862-3027. A
Ford, 1964 Galaxie, 2-dr. convt., eng. & trans. o/hauled, auto., \$600. 805-323-0985. A
Rambler, 1964, V-8, 4-dr., r/h, new tires & brakes, \$425. 213-378-1749. A
Lotus, 1969 Elan 2+2, fully equipped incl. cover, AM-FM radio, 15,000 mi. \$5,395. 213-823-5225. A
MGB, 1965 roadster, 51,000 mi., new clutch, brakes, starter, \$900. 213-377-4180. A
Pontiac, 1960 Star Chief, 4-dr., Hydramatic, r/h, p/s, p/b, \$200. 213-545-1672. A
Buick, 1959 LeSabre, 4-dr., a/c, h/top, full pwr., \$195. 213-323-4729. A
Station Wagon, 1966 Ford Country Squire, a/c, full pwr., lug. rack, stereo tape, \$1,250. 213-378-4959. A
Renault, 1960 Dauphine, 3-spd. manual trans., 31,000 mi., \$300. 213-379-0731. A
Corvette, 1964 Fastback, 4-spd., \$1,500. 213-424-5992. A
Volkswagen, 1967 fastback, r/h, rear seat spkrs., \$1,000. 714-528-0212. A
Triumph, 1964 Spitfire, soft top, tonneau, \$375. 213-534-0951. A
Mustang, 1966 convt., 289 cu. in. eng., \$1,300. 213-542-1827. A
American 220, 1964, 38,000 act. mi., \$425. 213-534-4420. A
Camaro, 1970, 350 c.i.d. eng., p/s, p/b, fact. air, many extras, 7,000 mi., \$3,500. 213-789-2886. A
Buick, 1964 Electra 225, 4-dr. sedan, full power, fact. air, AM-FM radio, 1-owner, \$600. 213-677-4193. A
Mustang, 1967 Fastback GTA 390, pwr. d/brakes, p/s, a/c, AM-FM radio, \$1,600. 213-378-3600. A
Station Wagon, 1969 Datsun, 4-spd. trans., radio, roof rack, a/c, \$1,650. 714-968-5343. A
Pontiac, 1963 Catalina, 2-dr., \$350. 213-323-6403. A
Jaguar, 1962 3.4 Mk II sedan, stick, o/drive, \$975. 213-378-3809. A
Plymouth, 1968 Road Runner, auto., p/s, fact. stereo-tape, \$1,600. 213-634-0246. A
Camaro, 1968, 20,000 mi., p/s, console, \$1,950. 213-370-2940. A
Datsun, 1970 2000 roadster, 7,000 mi., \$2,500. 213-785-1405. A
Ford, 1958, \$50. Box 101. A
Volkswagen, 1965 1500S Squareback, 72,000 miles, \$650. 213-547-3746. A
Oldsmobile 98, 1968, full power, min. bid \$2,095. Credit Union ext. 1117. A
Oldsmobile 98, 1957, p/b, p/s, r/h, a/c, 6-way pwr. seat, \$295. 213-430-5027. A
Chevelle, 1967 Malibu, 2-dr., V-8, p/s, auto., r/h, 40,000 mi., \$1,350. 213-372-7320. A
Cadillac, 1963 Coupe de Ville, \$900. 213-833-4479, 213-547-5618. A

Household Items For Sale

Dinette Set, blond never-mar table, 2 matching chairs, green vinyl, 54" table extends to 78" w/2 leaves, \$10. 213-541-3000. B
Sofa, 6', Danish, back cushions removable, \$25. 213-347-0298. B
Dining Room Table, apt. size, 6 chairs, leaf & full table mats, mahogany Duncan Phyfe, \$90. 213-375-5372. B
Dinette Table, round, 42", extends to 64" w/2 leaves, plastic laminate, simulated bleached wood finish, \$40. 213-676-6949. B
Bench, deacon-type, 9', Early American, \$85. 213-375-8804. B
Washer, Sears Kenmore auto., model 8440 top loading, \$75. 213-644-6164. B
Living Room Suite, 3-pc., orchid boucle', w/ attached corner, lamp & cocktail tables, formica top, \$125. 213-675-2772. B

Household Items For Sale

Dinette Set, Virtue, black formica, w/12" fill, 4 uphol. chairs, oval 35"x54", \$25. 213-371-1439. B
Dishwasher, Sears Kenmore, coppertone, 4 yrs. old, \$90. 213-671-1102. B
Crib, mattress & chest-of-drawers, \$55. 714-842-5968. B
Freezer, lge. size Coldspot, upright, lock, self-defrosting, 1½ yrs. old, freezer still under warranty, \$250. 213-542-3302. B
Couch, ivory-beige, makes into dble. bed, \$85. 714-778-3327. B
Sofa-Bed, 72" long, light beige brocade fabric, \$75. 714-635-1193. B

Miscellaneous For Sale

Swing-Slide set & sand box, \$12.50. 213-376-4831. C
Outrigger Sailboat, 18' Malibu, Freeway trailer, \$300. 714-527-5317. C
Acreage, 2½ acres fronting on new Adelanto pvt. airport, M-1, \$75 dn., \$75 mo., \$7,500. 213-378-1026. C
Surfboard, 7' long, 19" wide, \$65. 213-644-0071. C

Motorcycle, Kawasaki, Centurian Jr., 100 cc, 18.5 h.p., extra parts, \$475. 213-675-7915. C
Surfboard, Harbour, size 7'2", \$60. 213-567-3480. C
Clarinet, Bundy, covered keys, \$100. 213-371-6879. C
Motor for 305 Honda & trans., many extra parts, \$75. 213-371-4560. C
Record Changer, Girard, stereo, \$10. 213-862-3310. C
Bicycle, boy's 20", \$9. 213-761-9565. C
Calf Hide, unborn, complete, brown & white, 5½' \$10. 213-675-5695. C
Motorcycle, 1970 Honda SL-350, Dunlop K-70's, lug. rack, under 5,000 mi., \$625. 213-837-3671. C

Tape Deck, Teac Model A-1500W, used once, \$250. 213-372-7875. C
Motorcycle, 1966 Harley Davidson, 50cc, extra trail sprocket & chain, \$100. 213-833-7306. C
Guitar, elect. Teisco Del Rey, 2-pick-up, \$80. 805-482-7263. C
Lot, 60'x195', incl. club membership, \$2,400 dn., \$8,500. 714-737-2722. C
Gas Tank, for 1965 VW, \$15. 213-676-9574. C
Guitar Amplifier, 125 w., solid-state, Silvertone, 2 channel, many extras, \$145. 213-324-5449. C

Motorcycle, 1966 Hodaka, 100 cc, set up for desert & moto-X, many access., \$225. 213-633-2098. C
Tires, 8½" wide on 15" whls., fit Scout, Jeep, Bronco, \$30 ea. 714-493-4173. C
Boat, 16' Glasspar, 60 h.p. Merc outbld., lge. whl. tilt trailer, many extras, \$1,000. 714-527-5337. C

Light Fixtures, fluorescent, complete w/bulbs & starters, \$10 ea. 213-821-4180. C
Acreage, 10 acres, water, flat, Xmas Valley, Ore., \$2,900. 213-367-8065. C
Projector, 35mm slide, TDC model D, 300 w., \$15. 213-846-5589. C

Wheels, 4 7.50x14 Magster, & tires, less than 3,000 mi., \$150. 714-637-8337. C
Piano, spinet, walnut, French provincial, \$475. 213-378-0477. C
Lot, in Calif. City, in town, water, \$3,895. 213-370-2910. C

Ammunition, .30 M1 carbine, approx. 400 rnds., \$8 per 100. 213-545-6719. C
Ski Boat, 16' Glen L. design, completed fiberglass hull, custom steel trailer, \$275. 714-894-4680. C
Mini Bike, 3 h.p. Briggs & Stratton, shocks, \$80. 714-523-9429. C

Skis, White Stars, 205 RS, used 3 times, \$90. 213-375-4826. C
Cabin Cruiser, 1960 Chris Craft, 25', many extras, \$3,850. 213-547-4370. C
Chains, fit 7.10-15 to 8.25-14 tires, never used, \$10. 213-378-1685. C

Tape Recorder, Olympus Pencorder, portable, leather carrying case, earphones & mic., \$65. 213-676-3050. C
Pups, German Shepherd, male & female, 6 wks. old, \$10 ea. 213-679-5177. C
Boat Trailer, lge. whl. Wallstrong, 16', V-frame, winch, 600x13 tires, 1 yr. old, \$175. 213-377-5853. C

Drum Set, Ludwig, complete, \$300. 213-676-1235. C
Piano, Wurlitzer spinet & bench, walnut, \$275. 714-827-5507. C
Camp Trailer, 7' Teardrop, w/tent, sleeps 2, \$135. 213-676-4632. C

Travel Trailer, 1969 Ideal, 21½', hitch & access., \$2,895. 213-325-3675. C
Motorcycle, 1969 Yamaha 250 DT-1, parts to make street legal, \$475. 213-866-4450. C
Motorcycle, 1968 Harley Davidson 74, full dress radio, fairing, other access., \$1,700. 213-835-0608. C

Motorcycle, 1966 Bultaco Matador, 200 cc, \$250. 213-377-5107. C
Surfboard, 9'8", \$20. 213-377-5897. C
Mobile Home, dual wide, custom, on Newport Bay front, 2-bdrm., 2 baths, \$37,500. 714-673-1561. C

Quarter Horse, mare, gentle, \$400. 213-541-1630. C
Hair Dryer, salon-type, chair incl., \$10. 213-329-6748. C
Ham Gear, pr. 4CX250B tubes w/sockets, \$20. 714-639-4438. C

Miscellaneous For Sale

Acreage, approx. 73 acres, near Lake Nacimiento, \$100 mo., \$21,000. 805-495-5147. C
Pup, Afghan hound, AKC, 11 mos. old, black mask apricot, \$200. 213-531-8972. C
Typewriter, IBM Executive, modern elite type, \$350. 213-349-9733. C
Airplane, 1961 Cessna 210A, fully equipped, \$11,500. 213-399-4168 or Credit Union ext. 1117. C
Cables, 2, 33 ft. long ea. w/claves, \$6. 213-676-0041. C
Acreage, 2½ acre parcels, near Palmdale Intercontinental Airport, terms, low dn. pymt., low interest, \$6,500. 714-871-1373. C
Tent Trailer, Sherwood Archer, used 3 times, \$300. 213-322-3249. C
Wetsuit, skin diver's short sleeve top, nylon lined, small, \$10. 213-833-4191. C
Chains, Weed, fit 8.00x14 or 7.10x15 tires, never used, in orig. sack, \$10. 213-923-9957. C
Trailer, 1969 Aljo 21½'x8', self-contained, min. bid \$2,995. Credit Union ext. 1117. C
Bicycle, Schwinn, 10-spd. Varsity, 27", men's, \$45. 213-377-4623. C
TV, 19" table model w/separate legs, Sears, color, \$110. 805-498-4237. C

Wanted to Buy

Desk, lge. old fashioned ornate furniture type for home. 213-242-9723. D

Motorcycle, wrecked, or mini bike eng. & pieces, wheel sprockets, frames. 213-274-0589. D

Camping Trailer, fold down-type, Box 102. D

House, 3-bdrm. w/family room, nice Torrance area, approx. 1,800 sq. ft., 213-370-4175. D

Free (To Be Given Away)

Dog, sheltie & cocker spaniel. 213-676-5654.

Rentals Offered

Cabin, Moonridge, Big Bear Lake, 3-bdrm., 2 baths, f/place, completely furn., family only, \$125 wk., \$50 w/end. 213-326-7232. G

Cabin, Big Bear City, 1 yr. old, 2-bdrm., 1 bath, \$75 wk., \$35 w/end. 213-320-6486. G

Room, modern home, kitchen privileges, 2 baths, near San Diego & Harbor Fwys., \$65 mo. 213-830-6956. G

Apt, furn., 2-bdrm., cpts., dps., bitins, lge. pool, closed gar., near El Camino, adults, \$190. 213-329-5986. G

Apts, cpts., dps., bitins, all elec., closed gar., 1-bdrm., unfurn., \$135; furn. \$155; 2-bdrm., unfurn., \$165. 213-375-9397, 213-375-2091. G

Vacation Cabins, Idyllwild, 1 & 2 bdrm., stream, patio, f/place, \$30-\$40 w/end, \$70-\$90 wk. 213-868-8040. G

House, walking distance to Del Amo shopping center, 3-bdrm., 1 bath, f/place, corner lot, fenced backyard, \$200 mo. 714-528-3533. G

Rentals Wanted

Apt or House, 2-bdrm., 1½ baths, cpts., dps., reliable middle-aged couple, in quiet area. 213-772-4965. H

Child Care

Child Care offered, my home, 3 mos. to 3 yrs., have references. 213-644-0321. I

Personals

I would like to express my appreciation to the people in Plant III & Santa Fe for the lovely flowers & cards during my recent illness. STELLA M. TELLER. L

Our sincere thanks & gratitude to my many friends & co-workers for their kind expressions of sympathy & flowers during the recent loss of our parents. ANNE AADNESEN & THE HORWATH FAMILY. L

My sincere thank you to my Northrop friends for thoughtful hospital visits, cards, flowers, gifts & phone calls during my recent illness & recovery. BETTIE RUPP. L

With deep humility, I wish to express my thanks to all of you for the presents & thoughtful kindness in making my retirement party such a wonderful occasion. JAMES J. MAYBEE. L

Ironing, my home, you del. & pickup, Lawndale area. 213-371-5075. L

For Sale or Trade

Cartop Carrier, enc., lge. capacity, lock, \$20. or trade for oxy-acetylene equipment. 213-679-1631. M

Rides Wanted

7:30 a.m. — 4:12 p.m.

El Segundo & Normandie, Los Angeles. Rose Herron, Aircraft ext. 5042, 213-754-3665.

Moody & La Palma Blvd., La Palma. Anna Gullidge, Aircraft ext. 5041, 213-675-6789.

South St. & Bloomfield, Cerritos. G. K. Reckard, Aircraft ext. 5041, 213-865-1344.

Orange Ave. & Del Amo Blvd., Long Beach. W. H. Covert, Aircraft exts. 2653, 2039, 213-423-1363.

8 a.m. — 4:42 p.m.

Springdale & Edinger, Huntington Beach. Paul Eckroth, Aircraft ext. 1477, 714-846-1858.

Imperial & Lakewood Blvd., Downey. Morris Brown, Aircraft ext. 4487, 213-861-8508.

Rides Offered

7:30 a.m. — 4:12 p.m.

South St. & Bloomfield, Cerritos. G. K. Reckard, Aircraft ext. 5041, 213-865-1344.

Orange Ave. & Del Amo Blvd., Long Beach. W. H. Covert, Aircraft exts. 2653, 2039, 213-423-1363.

Boeing 747A and 747B Receive Certifications

The Federal Aviation Administration (FAA) has certified two new versions of the Boeing 747 superjet — the 747A and 747B — for use in commercial airliner operations.

Initial certification, granted for the 747B, followed evaluation of data accumulated in 98 hours of flight tests by the aircraft. Certified maximum gross takeoff weight of the 747B is 775,000 pounds, 65,000 pounds more than that of the 747 version now in service. The 747B is capable of greater range and payload and will be capable of carrying a full passenger payload more than 6,000 miles nonstop.

The Boeing 747A has a maximum gross takeoff weight 25,000 pounds heavier than the original 747. It was developed after analysis of static structural test results showed growth potential in the 747. The 747A, equipped with Pratt and Whitney JTD-3AW engines with water injection, has an additional 6,000 pounds of thrust above the original 747.

Nineteen 747A's have been ordered with Pan American World Airways scheduled to receive the first 747A. Twelve airlines have ordered 43 of the advanced 747B superjets with KLM Royal Dutch Airlines slated to receive the first delivered.

EDITOR'S NOTEBOOK

The Boeing Company has conducted an unusual demonstration tour with a 747 superjet that included two mercy operations as part of the operation. The tour, begun in mid-November, wound up just before the yearend holiday period. It included 40,000 trip miles, the logging of 80 flight hours, 16 demonstration flights carrying more than 2,100 passengers.

The first segment of the tour covered Latin America with stops in Mexico, Colombia, Argentina, Paraguay, Brazil and Venezuela.

The second segment was Seattle to New York, then to Athens, Tehran and Dacca, with return via Paris. On this segment the 747 airlifted 45,000 pounds of emergency supplies for victims of the devastating cyclone which hit Pakistan. In addition, it airlifted 150 Pakistan Army troops on compassionate leave. For many of them the flight was the prelude to a search for members of their families in the cyclone-devastated area.

A. B. Custis, a senior electronics engineer working at Houston with Brown and Root-Northrop, has asked our help in his hobby of model airplane building. Mr. Custis is interested in building a model of a four-engine seaplane he calls the Northrop Yankee Clipper. He reports having seen the big ship in action around Pearl Harbor during the 1939-40-41 era. However, he has been unable to locate information on this plane.

A bit of research by the News staff turned up some information. In Boeing publications we found mention of a similar plane called the Model 314 and even found a photo of Mrs. Eleanor Roosevelt christening a plane called the Yankee Clipper. A further check with two of Northrop's foremost model airplane builders, Earl L'Homme and Nick Linardos, leads us to believe we are on the right track. One thing is certain, Northrop has never built a four-engine seaplane.

We have forwarded what information we have to Mr. Custis. However, if any Northrop employees have information or plans that will help him, we will be glad to pass them along.

NEW RESTRICTIONS SET BY DOD

Recent airliner hijackings have necessitated new restrictions for persons hand-carrying classified material on commercial airline flights.

The new Department of Defense regulations include:

—Classified material may no longer be hand-carried outside of the continental (contiguous) United States.

—The material can be airmailed outside the 48 states only through APO or FPO channels or as otherwise specified by the

contracting officer.

—Hand-carrying of classified material within the U.S. should only take place when it is impossible to mail the documents in advance to the travel destination.

In addition, Mr. Simmers reminded personnel of their "individual responsibilities in safeguarding classified material at all times."

Any employee who has questions or doubts concerning the expanded travel limitations is urged to contact any Northrop Security office.

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NORTHROP NEWS

Vol. 29

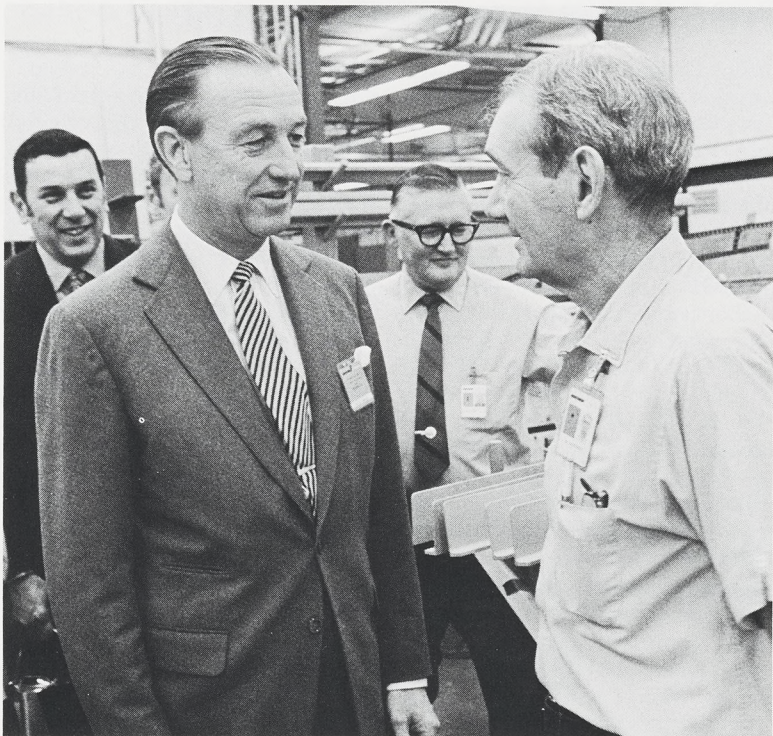
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Wishing Him Well



NORTHROP PRESIDENT Thomas V. Jones was a surprise well-wisher at retirement of senior 747 assembler Mike Reichert. Touring Ventura at Christmastime, Mr. Jones was joined by Welko Gasich, left, and John Wells in dropping by at small party capping Mr. Reichert's 11½ years with Northrop.

John Flores Back on The Job After Completing Advanced Program

John Flores is back on his job as chief engineer and deputy manager of the Engineering department at the Ventura Division after graduation in December from the Advanced Management Program of the Harvard University Graduate School of Business Administration.

The 13-week Advanced Management Program is designed to improve executives' capability for top management decision-making and long range planning.

Harvard's 59th AMP class was composed of 160 senior executives, including high-ranking businessmen, military officers and government officials. They came from 28 states and 23 foreign countries.

Another Venturan, John E. Evans, vice president of Production Operations, is taking the AMP on a split-session basis. He will complete the program this summer.

Learning About 747



STATE SENATOR Robert J. Lagomarsino learned about Northrop's 747 role at Ventura recently from Bill Kearney, left, and John Evans, vice president of Production Operations. Sen. Lagomarsino represents Ventura and Santa Barbara Counties in Sacramento.

Jim Montoya Featured in Educational Film Along with Amazon Indians, Farm Family

Who would ever think that Jim Montoya, of 747 Repair and Potting at the Ventura Division, would be featured in a movie? Certainly not Mr. Montoya.

But that's exactly what happened. Not only that, but at least a dozen other Ventura personnel will be seen in the same documentary-educational film.

Mr. Montoya and his family are one of three families whose different life styles are displayed in the film made by Wayne Mitchell of Compass Films, Hollywood.

"This is a film for social studies classes at the junior high school level," Mr. Mitchell told the Northrop News in between shooting with his hand-held 16 mm camera.

"One family, of the Yagua Tribe in the Amazon River Valley, gathers what it needs for food and shelter. Another family, the typical American farm household, grows what it requires and sells the surplus to satisfy its other needs," Mr. Mitchell explained.

A Different Angle

"And the third family, Mr. Montoya's, is 'modern industrial', so to speak. Mr. Montoya's work is not related to his family's basic needs; but the end product, money, is to satisfy those needs. The comparisons are interesting."

Mr. Montoya was selected by Ventura's personnel office after Mr. Mitchell described the type of person he was looking for.

Mr. Mitchell was filming at Ventura two days. Centered around Mr. Montoya's work, the film includes Venturans Curly Martin, Dwayne Ratcliff, Frank Koontz, Charley Gray, Paul Friedman, Bill Leeds, Jesus Tavera, Harvey Berry, Joe Sotelo and Gary Williams as well as

General Manager Welko Gasich and Tanet Palmer, a secretary.

He then went to Mr. Montoya's home in Simi and filmed his wife, Alyce, and children Rick, 14, Rhoda, 13, and Rina, 7, in various activities of the suburban family — at home, shopping, bowling, in school, at a women's club meeting, and so on.

From the Ventura Division to the Amazon is a long way to go for an educational film. But for Mr. Mitchell it was just another

sticker on his suitcase.

A former aerospace cinematographer (North American) and college instructor (Miami University), Mr. Mitchell has been filming people and places around the world for the past several years. More than 50 of his films are now in circulation.

His adventures and narrow escapes are too numerous to list here. Interested in the social and natural sciences, Mr. Mitchell's life is full of variety.



MAKING A FILM AT VENTURA
Wayne Mitchell adjusts camera before filming Jim Montoya.

Apollo 14 Launches for Moon Jan. 31, Many 'Firsts' Aboard

Every Apollo flight has recorded "firsts" in space history and the Apollo 14 mission, launching Sunday Jan. 31, is no exception.

Among the major Apollo 14 distinctions are:

—The oldest U.S. astronaut yet to go into space. Navy Capt. Alan B. Shepard, flight commander, is 47. Air Force Maj. Stuart A. Roosa, 37, will pilot the command module, Kitty Hawk. Pilot of the lunar module, Antares, is Navy Cmdr. Edgar D. Mitchell, 40.

—The most scientifically-oriented flight to date. Astronauts Shepard and Mitchell will land in the hilly uplands region near Fra Mauro crater and seek to return with large rocks expected to be near 4.5 million years old.

—Use of a new two-wheeled vehicle allowing the moon explorers to cover greater distances while picking up samples. The

Modular Equipment Transporter (MET) looks something like a combination ricksha and two-wheeled cart made of aluminum.

—Use of a new water cooling system on the moonwalking astronauts' backpacks which can be shared along the lines of a "buddy system." The Buddy Secondary Life Support System (BSLSS) offers greater roaming range for the moon stroll as well as added safety.

Astronauts Shepard and Mitchell are expected to land on the moon Feb. 5. Two surface expeditions will require 10 of their 34 hours on the moon.

They hope to recover moon rocks two-to-three times the grapefruit-sized rocks brought back in Apollo 11 and 12 before rejoining Astronaut Roosa for the flight home.

Splashdown, using the Ventura-produced Apollo Earth Landing System, is scheduled for Feb. 9 in the Pacific.

New Chess Club Seeking Members

A Chess Club is being reactivated at the Ventura Division.

Ivan Blum and Hal Hunsberger are reactivating a Recreation Club charter for such a club and seeking members for lunch hour games and tournaments.

But they aren't limiting their efforts to chess. "This is actually going to be a 'Chess and Go Club,'" Mr. Blum explained. He said Go is a 5,000-year-old Far Eastern game which is probably more demanding in strategy.

Chess players and those interested in learning Go should contact Mr. Blum at ext. 1007 or Mr. Hunsberger at ext. 535. A meeting place will be set after the number of participants is determined.

MERRITT FINISHES FAST, EARNS GOLF TITLE

It took a fast finish, but Wayne Merritt did it. He won his flight in the final Ventura Division Golf Club tournament of 1970 and garnered enough points to earn the "Golfer of the Year" title.

Mr. Merritt shot a 62 to win the C Flight in the December tournament at Soule Park in Ojai and nail down the year's top spot. His 480 points edged Al Hahn's 460.

Battling for second in the C Flight were Mark Peterson and Roy Shelley. Mr. Peterson won, 71.34 to 71.47.

Jim Wright also had a 62 to

win the B Flight while Mr. Hahn came in second with a 71 and Warren Sparks was third at 72.

John Peterson's 69 was good enough to win the A Flight. He was followed by Bob Jones, 71, and George Avery, 73.

Closest to the pin honors went to Norm Curtis, Mr. Jones and a guest, D. Maher. Mr. Avery had the longest drive at Soule and Eileen Munro won the Ladies Flight.

In yearend point standings, Ron Aitken and Mr. Jones tied for third with 330. Jack Haley had 300, Mr. Sparks and Sam West-had had 290 each.

Next in line were Buck Gilmore, 270, Lew Vinson, 260, Ken Brubaker, 250, Mr. Avery, 240, Bill Carruthers, 220, Chuck Brune and Ed Sheridan, 210, and Hal Barber, 200.

Lois Sheridan won the women's "Golfer of the Year" title with 350 points followed by Sue Wiscaver, 330, Miss Munro, 190, Yvonne Aitken, 165, Julie Williamson, 75 and Barb Forbes, 45.

The golfers start 1971's competition with a tournament Jan. 30 at Elkins Ranch in Fillmore. Reservations can be obtained through Bill Quick, ext. 502.

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February 3, 1971

Carl Emerich Marks 25 Northrop Years

Two men are sporting 25 and 20-year pins, respectively, while four other Venturans received 15-year emblems representing Northrop service in January.

Carl Emerich, manager of the experimental shops, joined Northrop Jan. 10, 1946, in Hawthorne.

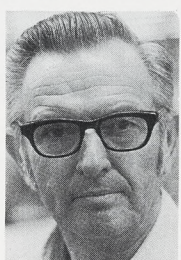
He worked on the landing gear installation and electric motor test on the B-35 aircraft. Mr. Emerich started the ultra-sonic test operation at Lynwood in 1949 and then participated in the Snark, Skybolt and Ranger

projects as well as production of the P-61, F-89 and T-38 airplanes.

Mr. Emerich's work took him to the Electronics Division at Palos Verdes in 1957 and in 1964 he transferred to Ventura to work on the Apollo program and all subsequent experimental flight and test vehicles. He is a past officer of the Aircraft Division Management Club.

Via Begins 21st

Johnnie Via joined then-Radioplane Jan. 9, 1951 as a maintenance man. He worked his way up to final assembly on the OQ-19 drone and the Experimental Shop before moving to Industrial Relations in 1966.



Mr. Via

metal operations.

A past-president of the Recreation Club, Ventura Credit Union and Dollar Donors, the 20-year man is well known at Ventura.

Earning 15-year pins in January were Bill Bridwell, Product Development; Les Goodwin, Experimental Shop; Bonnie Stewart, Engineering Test and Product Support; and Duane (Dutch) Youngers, Subcontracts office.

Five-year pins went to Chris Benneche, Lee Como, Tom Dvorak, Sue Gailey and Betty Pemberton.



THEY'LL LEAD RECREATION CLUB IN 1971

From left, Bill Umbenhauer, Tony Piscuskas, Fred Howard, Betty Reinisch, Bob Calhoon. More photos, page 6.

Ventura Club Meets Feb. 10, To Hear Gasich

"Management's Role in Business Acquisition" will be the topic of Ventura Division General Manager Welko E. Gasich when he addresses the first 1971 meeting of the Ventura Division Management Club next week.

Also on the agenda for the Feb. 10 dinner meeting at Los Robles Inn is an introduction of new officers by President George Bostater and Management Club plans and goals for 1971.

Highlighting the evening will be entertainment by "The Melody Misses," a professional duet.

Members may make reservations with the following organizational secretaries: Engineering, Mary Clerico, ext. 664; Administration, Tanet Palmer, ext. 307; Manufacturing, Bert Rose, ext. 213.

Guest tickets are available at \$6 per person.

Rec Club Installs '71 Slate

The Ventura Division Recreation Club year started on a light note as new officers were installed and outgoing officers honored at a Jan. 23 dinner at the Calabasas Inn.

Bob Calhoon stepped up from his sergeant-at-arms job to the presidency as he took the gavel from Dorothy Prychoda, president for the last two years.

Mr. Calhoon, an eight-year employee in Master Scheduling, is a past-commissioner of the Bridge Club.

Other new officers are Bill Umbenhauer, vice president; Tony Piscuskas, treasurer; Betty Reinisch, secretary; and Fred Howard, sergeant-at-arms. Mr. Piscuskas and Mrs. Reinisch were both re-elected.

Among the more than 50 persons who attended the dinner were outgoing club commission-

ers and several past-presidents. Rex Fairless, manager of Industrial Relations, represented management.

Past-president John Lawrence introduced the new officers after Mrs. Prychoda presented the outgoing slate with humorous symbols of office. She similarly honored past-presidents.

Recognized clubs and activities and their commissioners include:

Billiards—Dick Ranes; Bowling—Paul Potter; Bridge—Leon Scrydloff; Camera—Bill Umbenhauer; Chess—Ivan Blum; Dance—Maybelle Trudell; Four-Wheel Drive—Bill Umbenhauer; Golf—Warren Sparks.

Also, Models—Gene Linhart; Radio—Bob Vogt; Rifle & Pistol, Rod & Gun—Harry Caseldine; Rock Hounds—Frances Rush;

and Softball—Pat Cloward.

Planning and coordinating the dinner was the responsibility of Bill Dierker, special events chairman.

WELLS PICKED

John H. Wells, manager of Production Metal Fabrication and Boeing 747 Assembly at the Ventura Division, has been elected president of the Conejo Valley Shrine Club.

A second vice president when the club was chartered four years ago, Mr. Wells now leads a club with 300 members from Thousand Oaks, Newbury Park, Simi Valley, Westlake, Agoura and Camarillo.

Several other Northrop personnel are active Shriners.

Weekend Sailors Recover Durable Ventura Drones

Three weekend sailors earned cash rewards and the durability of Ventura Division-produced MQM-74A target drones was proven again with the recovery of three drones from the Santa Barbara Channel waters.

The civilian sailors, two from Oxnard and another who lives in Los Angeles, recovered the drones recently and returned them to the Navy at Point Mugu.

All three drones were reported to be in excellent condition and will be reused in future exercises by Navy personnel.

Apparently the birds had not been damaged in flight. When they ran out of fuel their parachutes deployed and they stayed afloat until found by the pleasure boaters. Most targets, however, are recovered by the Navy at the end of their flights.

VENTURA SUGGESTERS CONTINUE TO REAP CASH AWARDS WITH COST-CUTTING IDEAS

Thirteen Ventura personnel shared cash awards of \$317 last month as the Suggestion Awards Program continues to pay dividends for cost-cutting ideas.

Jim Kearney topped the January list with a \$46 check for an idea to improve working floor surfaces.

Frances Rush and Fred Berumen each received two awards

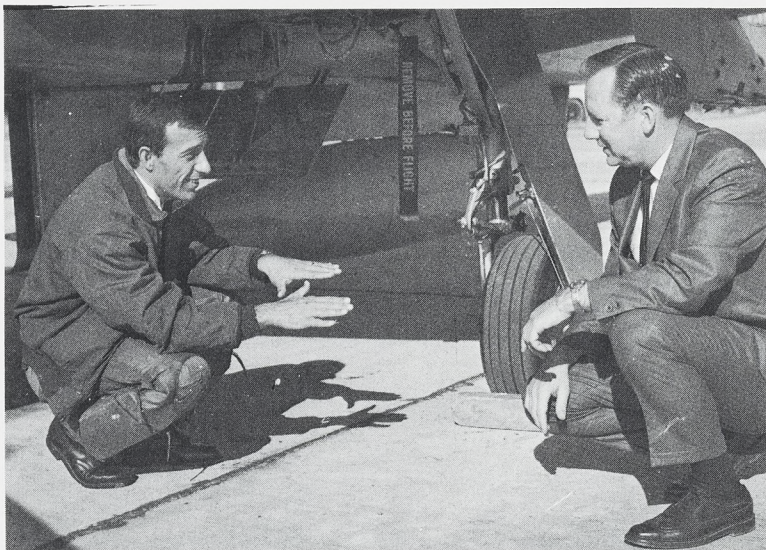
for their ideas. Miss Rush earned \$21, Mr. Berumen was given \$24.

Receiving \$23 apiece for their suggestions were John Kavanagh and Jack L. Landis while S. A. Flakus earned a \$20 award.

Pocketing \$10 apiece for their efforts were W. R. Ratcliffe, John Wade, D. G. Prather, Gene Colborn, Bob Harris, Bert Molina and Gene LaCross.



LOOKING BACK ON 25 NORTHROP YEARS
Carl Emerich shares humorous anecdote with Welko Gasich, left.



HE LANDED F-5 ON ONE BRAKE ASSEMBLY
Turkish Air Force Captain Metin Senturk, left, with Northrop's Darrell Cornell.

Turkish AF Pilot Lands F-5 Without Wheel, Tire

A fitting tribute to the craftsmanship that goes into every Northrop F-5 tactical fighter and the professional airmanship of Turkish Air Force pilot Captain Metin Senturk was the end result of a recent mishap that could have been much more serious than it actually was.

Capt. Senturk, flying from Merzifon Air Base, Turkey, had just lifted his F-5A off the runway when he felt an unusual vibration from his left landing gear tire. He elected to leave his landing gear extended and make a pass by the tower. He was

informed he had lost his left tire at takeoff.

After circling the base to consume fuel, Capt. Senturk executed a shallow final approach to maintain a higher than normal landing speed. After touchdown he deployed the drag chute and utilized nose wheel steering to roll to a stop in 3,000 feet.

A postflight inspection revealed he had lost the tire and wheel, and the landing was made on the brake assembly, the only damaged part of the aircraft.

Amendments Approved for Northrop Savings Plans

Northrop Corporation's board of directors has approved several amendments to the Northrop Employees' Savings Plans.

If, upon withdrawal from the Plan, the value of an employee's Profit Fund is less than \$500 and the shares which would be issuable are less than 25 shares, then cash will be paid. Previously, the Plan read "\$500 and 10 shares."

If the market price is such that the value (under \$500) would buy at least 25 shares, then shares will be issued. When the value of an employee's Profit Fund exceeds \$500, Northrop shares will be issued regardless of the number of shares which can be purchased

due to the market price then in effect.

Another approved amendment offers retiring employees an additional option to purchase an annuity from an insurance company specified by the company, in lieu of an immediate cash payment. Not less than \$4,000 can be put into an annuity.

As another option and in addition to the present right to defer his withdrawal for one year, a retiring participant may leave not less than \$4,000 of his savings in the Plan and receive payments over a 10-year period, payable on a quarterly basis. Such payments will be at the unit value in effect at the time of payment.

Marking 9,000 Military Flight Hours



DOING THE HONORS—When Commander Bob Sample, left, director, U.S. Naval Test Pilot School, and his deputy director, Commander Gary Scott, went aloft for a flight in one of the U.S. Navy's five Northrop T-38 aircraft recently both had reason to celebrate. Cdr. Sample was logging his 5,000th military flight hour and Cdr. Scott his 4,000th. Congratulating both is Northrop's Herman Freeman. U.S. Navy photo.

Old-Timers Will Discuss Northrop P-61 Black Widow At AIAA Meeting

The Northrop P-61 Black Widow will be the subject of a discussion by a panel of men who had an active part in each phase of the airplane's history during World War II.

The meeting, sponsored by the American Institute of Aeronautics and Astronautics, will be held at 7 p.m., Feb. 26, in the Northrop Recreation Club, 12626 Chadron Ave., Hawthorne.

The meeting is open to the public.

Coordinator and moderator of

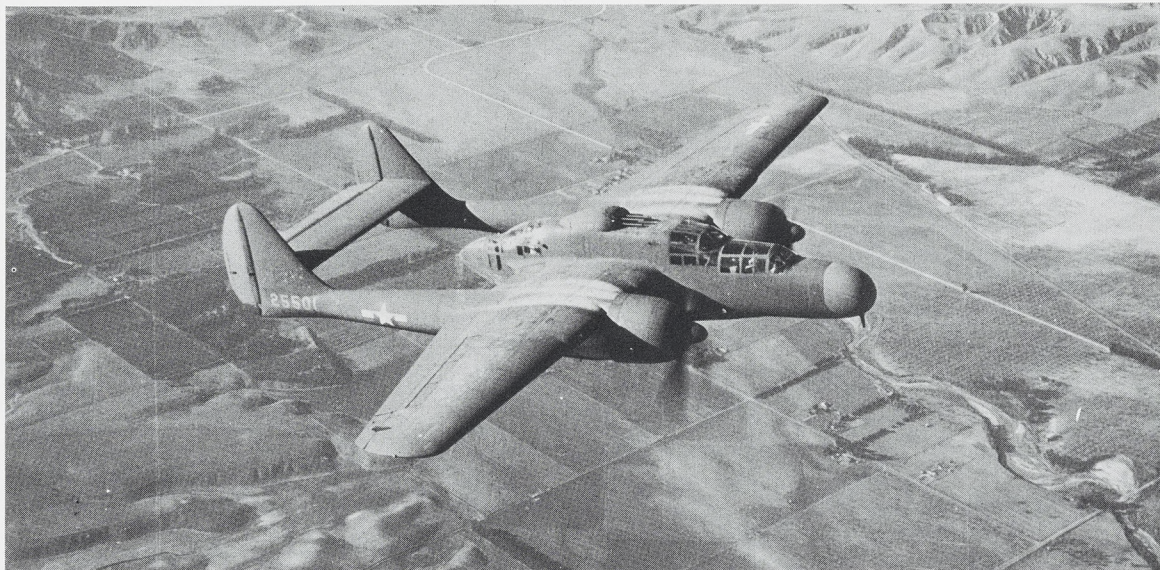
the program will be Kenn Rust, editor of the Aero Album aviation magazine. Mr. Rust is a longtime aviation writer and has had several of his articles appear in leading U.S. and British publications.

On the panel with Mr. Rust will be Gen. Winston W. Kratz, USAF (Ret.), Irving L. Ashkenas, Max Stanley, and at least one of the wartime fighter aces who downed an enemy airplane with the Black Widow.

During the war, General Kratz,

then a colonel, was commander of the 481st Night Fighter Operational Training group at Orlando, Fla. Mr. Ashkenas was then head of the aerodynamics group concerned with the P-61 project at Northrop. Mr. Stanley, who recently retired from the company, was a Northrop engineering test pilot.

In addition to slides covering the development of the P-61, some motion pictures of its operational use will be shown from the Air Force Film Library.



FAMED NORTHROP P-61 BLACK WIDOW
First aircraft designed specifically for night fighting.

IN STELLAR CHAPTER

Doris Robinson 'Secretary of The Year'

The Stellar Chapter, National Secretaries Association (International), has selected Northrop's Doris Robinson as its 1971 Secretary of the Year.

Mrs. Robinson, secretary to Frank Morehouse, Aircraft Division manager of Business Systems Management, is now in contention for similar honors in the Southern California district and could ultimately compete for regional and national honors with each step up involving additional competition.

Recognition of Mrs. Robinson came last month at an annual meeting held at the Los Amigos Country Club.

Judges for the 1971 contest were: Hazel Edwards, executive secretary to the president of California Industrial Products; John F. Watkins, vice president and secretary of Earle M. Jorgensen Co.; and Dr. Palmer G. Campen, superintendent of the Paramount Unified School District.

Criteria for the judging covered the full spectrum of secretarial skills, including poise, personality, professional and technical techniques and the ability to field impromptu questions involving work in the field.

Mrs. Robinson has worked for the Aircraft Division for the past eight and one-half years. She is

currently president of the Stellar Chapter and served the organiza-

tion as treasurer in 1968 and first vice president in 1969.



STELLAR CHAPTER'S CHOICE FOR 1971
Doris Robinson is 'Secretary of the Year' of NSA chapter.

Northrop News Will Spotlight SST

Controversy, accompanied by a great amount of misinformation, has surrounded the congressional battle over the development of the United States Supersonic Transport (SST).

Northrop personnel have a stake in the outcome.

The Aircraft Division has been selected to build the entire forward fuselage — the pilots' compartment and nose section — of two prototype SSTs initially slated for development. This work could ultimately lead to production contracts.

More, as dedicated advocates of the continuing advancement of aerospace technology, Northrop employees are entitled to information through which they may sort fact from fantasy and arrive at their own personal opinions on the matter.

Plans are now being formulated to make this information available. Under the leadership of John McCoy, Aircraft Division vice president - Commercial Programs, special presentations are being developed to enable Northrop executives and employees to know, understand and pass on factual information involved in the SST program. Mr. McCoy initiated this program Jan. 20 with a speech before the International Forum of the World Affairs Council meeting at the University Club of Los Angeles.

Northrop News is preparing a series of informative articles to be used in the near future covering many aspects of the SST program. Included will be information on how individual employees may take an active part.



MEMBERS OF THE NORTHROP SNARK LAUNCH AND RECOVERY TEAM AT CAPE CANAVERAL, FLORIDA.

SNARK—America's First Intercontinental Missile

The Northrop-built Snark, America's first intercontinental missile, received its name from Author Lewis Carroll's whimsical and poetical fusion of the snake and the shark.

But unlike the nonsense creature created by Carroll in his poem, "The Hunting of the Snark," Northrop's Snark meant business. Its potential bite served as a warning to other nations that an attack would only stir the U.S. Snark from its peaceful nest.

The Snark, launched by two ejectable solid propellant booster rockets attached to the fuselage, cruised at high altitudes and near-sonic velocities. It could carry out its mission despite night or inclement weather and deliver its nuclear warhead with unprecedented accuracy more than 6,000 miles.

Highly Mobile

The Snark could be "zero" launched from a stationary or mobile launcher in a small area. The missile and launcher were mobile and could be flown to any point in the world within a few hours. Normally, the Snark and its ground support equipment were transported by C-124 Globemaster aircraft and they could be set up in launch status within a short time after arrival at a given destination.

The Snark was relatively small for its assigned mission—to deliver a nuclear or other warhead to any military target in the world. Its over-all length was 69 feet with a wingspan of 42 feet. It stood 15 feet high and had a launching weight of 50,000 pounds. The Snark's tail consisted only of a vertical stabilizer. Elevons—combination ailerons and elevators—on the trailing edge of

the wing eliminated the need for a horizontal tail.

It took Northrop nearly 10 years to produce the first operational Snark. Work began in the 1946-47 time period. Fred Stevens, Corporate vice president for Diversification, recalls those early years:

"We were told that the Snark should have a range of 5,000 nautical miles. In those days, getting a bomber from the Marianas to Japan, a distance of 1,500 miles, was a real chore.

"Since the Snark was to be pilotless, it would have to contain its own guidance system. Once launched it would have to rely on its own built-in instincts for reaching the target. And this was in the days when human navigators were still having troubles on the San Francisco-Honolulu run."

But men like Mr. Stevens and Ross F. Miller, Corporate vice president and general manager of the Electronics Division, along with engineers such as Roy Kaufold, Lloyd Balsam, George Fritzel and others, met the challenge.

Together they helped to design the Snark's Mark I astro-inertial guidance system that steered the Snark with great accuracy during its long distance flight.

The Mark I was rugged, self-contained and nonjammable. It was capable of correcting the Snark's trajectory even when launched off-course.

The rewards for developing the Mark I were many. Not only did it provide the ultimate guidance system for the Snark but, in later years, the technology gained from its development would lead to many of the present-day programs being worked on at Northrop. These include the navigation and guidance systems for the

(Editor's Note: This is the fourth in a continuing series of articles featuring historical Northrop products. Northrop News staffer Tony Cantafio wrote and researched this feature.)

C-5 and SR-71 aircraft. Mark I data also is being applied to Northrop's work on the ATAR optical tracking system. Other technologies gained from Snark experience, such as checkout and countdown procedures, were subsequently applied in the development of ballistic missiles.

Proven in Tests

Before the Snark became operational with the Strategic Air Command it was flown repeatedly from Cape Canaveral (now Cape Kennedy), Florida, to Ascension Island—a distance of 5,000 statute miles.

Present at the majority of those flights was Sal Xifo, currently manager of Advanced Program Operations for the Aircraft Division.

"Working on the Snark, and being a member of the team to develop this effective weapon, was one of the greatest experi-

ences of my life," said Mr. Xifo.

"The Snark was a beautifully designed bird. She had clean lines and experienced only a minimum amount of drag for control during the long cruise period."

After the Snark was launched Mr. Xifo, who served as a launch director, would monitor its progress down range in the Snark control room. On occasion, other key people involved in the program would join him. They included Lou Brennwald, Milt Kuska, Wil Tebo, Dave Deering, Bill Gough, Tom Glanville and Rulon Bailly.

The 5,000-mile trip from the Cape to Ascension Island took approximately nine hours.

Downrange, tracking stations in the Grand Bahamas, Puerto Rico and on ships at sea, would successively pass along the standby radio control of the cruising Snark. And then, at the appropriate distance from the target, the Snark would automatically release its nose cone—containing a dummy weapon—with a high degree of accuracy.

"It was quite a sight to see the Snark deliver its payload within a half-mile of its target," said Mr. Xifo. "I know it gave much satisfaction to our team of engineers and technicians."

The Air Force ordered the Snark into production in June 1957. Approximately 7,800 Northrop employees were involved on the project.

Max Fayrweather, Manufacturing project superintendent at the time, recalled that the Snark was assembled much like an aircraft, "except that the reliability for all systems was much greater."

Mr. Fayrweather remembered

that each Snark delivered to the Air Force had to pass an eight-hour performance check out.

"Each bird would be tied down to its launcher," he said. "A simulated flight tape was used in the guidance system, complete with engine running, and its progress was monitored on instruments by the test team as if the Snark were making an actual flight from Cape Canaveral."

Training of Air Force technicians to maintain and launch the missile was also a very vital and important part of the Snark program, according to Frank Mathes, who directed the Field Services and Training department.

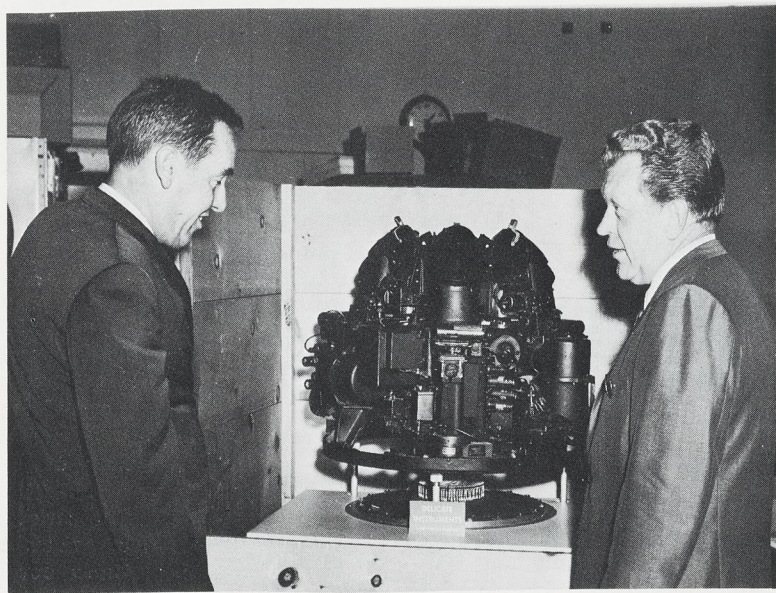
"The training of Snark missilemen went exceptionally well due to the efforts of Art Gandy and his team," Mr. Mathes stated. "The biggest problem we had was tearing the Snark away from our own engineers. After all, it had been their baby for nearly 10 years," he chuckled.

Without a Failure

Of special note in the training program is the fact that every test launch conducted by the Air Force was a complete success.

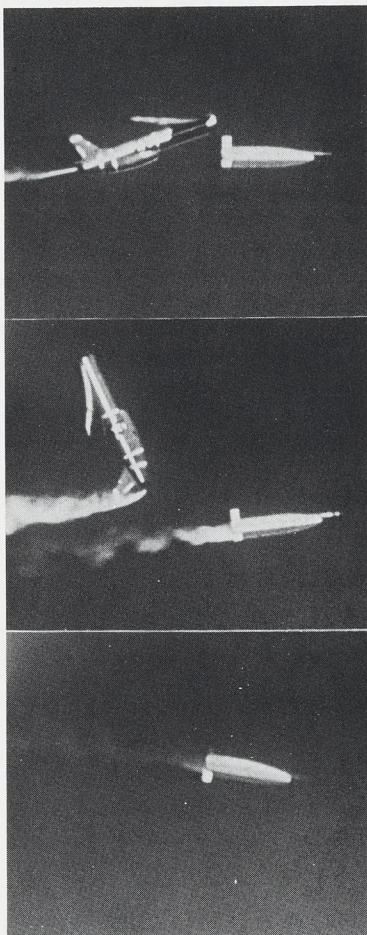
Northrop's final efforts in the Snark program were devoted to setting up the missile sites at Presque Isle Air Force Base, Maine.

Under the direction of Project Manager Gaylord Anderson aided by Walt Bogess, Ken Revoir, Bill Loomis and many more, the missile complex there was completed on-schedule, within costs, and became operational on the day it was supposed to—thus fulfilling the Snark's assigned mission of protecting the United States from aggression.



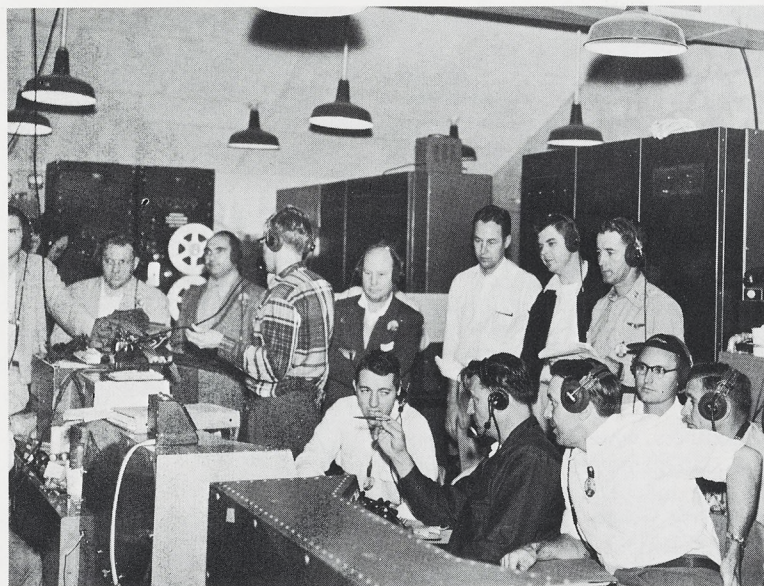
A PROUD MOMENT

Roy Kaufold, left and Ross F. Miller recall early days of Snark guidance system development prior to its shipment to Smithsonian Institute, where it is on display as the world's first astro-inertial navigation system.



AWESOME STING

Nose cone separates from Snark (1) and streaks ahead as the body falls away (2) and begins supersonic plunge toward its pre-assigned target (3).



SNARK CONTROL ROOM ACTIVITY

Seated in center of photo is Sal Xifo. Standing directly behind him is John R. Alison, Corporate vice president—Customer Requirements. On Mr. Alison's left is Milt Kuska, vice president of the Aircraft Division for Customer Requirements and Support.

THEY ARE EVERYWHERE

Lawrence Family Loves Orchids

Bob Lawrence likes orchids. He has them in his front yard, backyard, patio, in a hot house, and in floral arrangements in his home. And although he has 200 species of orchids and so many different plants that he can't count them, he is looking for more.

In November he and his wife, Ella, made a trip to the jungles of southern Mexico to find new wild plants for his collection. During their 30-day orchid-hunting trip, the couple went to Matzalan, Morelia, and Vera Cruz. They took a car into back roads in the jungle, stopping when they saw likely orchid growths.

The exotic flowers, which grow in humid localities, were removed from trees to which they had anchored themselves and brought back in the trunk of their car.

"People, for some reason, seem to think orchids are fragile," Mr. Lawrence said. "They are built to survive."

The Mexican wild orchids can be imported to the U.S. by obtaining a permit from the Department of Agriculture, but can only be entered at ports where fumigation facilities are available. He and Mrs. Lawrence entered theirs through Nogales.

Although they brought back a trunkload of plants, he still does not know exactly what he has. There are 20,000 different species of orchids and most can't be positively identified until they bloom.

Many Sizes

His present collection has orchids ranging from blooms so small a magnifying glass is needed to study the blossoms to large orchids six inches across the bloom. The colors range through the rainbow. Blues, he says, are scarce and so are good reds.

Although he has two hot houses, many of his plants grow outside and around his house as well as in his trees. "Orchids are far easier to grow than most peo-

ple realize," he said. "They need a humid, frost free climate and grow very well along the Southern California coast, if the area is frost free. They are not a parasitic plant like many people think. They attach themselves to trees solely as an anchor point. They do not sap the tree. They don't do well in soil. In this natural habitat all their substance comes from the air, and their water from humidity and rainfall."

Mr. Lawrence, a Quality Control engineer with the Aircraft Division, got into orchid growing 15 years ago because he has always liked to grow things. After reading that orchids were not as delicate as people imagined and very easy to grow even in Southern California, he bought some plants and started his present collection.

"In fact," he recalled, "I bought so many plants that I had to marry a girl who worked in one of the orchid nurseries to get someone to help me take care of them."



WHERE WILL I PUT THE NEXT BATCH?

Bob Lawrence ponders placing of 200 species of orchid plants.

COMMITTEE TABS
KRIS LINDSTROM

Marine Biologist Kris Lindstrom, son of the Aircraft Division's Sven R. Lindstrom, has been invited to serve on a Committee on Comparative Oncology under auspices of L'Union Internationale Contre Le Cancer (UICC).

Serving with him are Dr. John C. Harshbarger of the Smithsonian Institute and Dr. Narbik A. Karamien of the National Institute of Health.

The committee is including in its work such topics as exploration of the relationship between the incidence and nature of diseased and cancerous fish and environmental pollution.

STATEMENTS

Northrop Credit Union last month distributed statements of accounts for the period ending Dec. 31, 1970, to all members.

Members who did not receive such statements are asked to contact the independent auditors of the Credit Union. The address is: John B. Knight & Co., Certified Public Accountants, 2926 Santa Monica Blvd., Santa Monica, Ca. 90404. Such correspondence should include the member's name, address and Credit Union account number.

RETIREEES PLAN
GROUP TOURS

The Northrop Retirement Club is kicking off 1971 with two group tours and invites all retirees to take part.

On Feb. 23 the club will visit Busch Gardens, departing from the NRC Clubhouse, Hawthorne, at 10 a.m. and returning at 3 p.m. The cost, for bus transportation, the only charge, is \$1.75. No advance registration is required.

March 29-30-31 the club will visit Las Vegas, staying at the Mint Hotel. The package cost, including transportation, lodging and meals, is \$31. Contact George Sanborn, 916 Maple, Inglewood, 90301.



GEORGE GARNER AND CONFIGURED BOW

Rube Goldberg-looking rig reduces pull required to shoot arrows.

Modern Archery Approach
Calls for Wheels, Pulleys

Robin Hood and William Tell, history's most famous archers, would have been thunderstruck by the bow that Electro-Mechanical Division NRC Archery Club Commissioner George Garner recently demonstrated for the club.

The bow, with its pulleys, wheels and criss-cross stringing, looks like something Rube Goldberg might have designed. However, according to Mr. Garner, the odd-looking gadgets all have a purpose.

In this bow, known to experts as a configured bow, the crossed string and pulley wheels are arranged to reduce the pull necessary to shoot an arrow.

For example, if the bow has a 50-pound pull, when the string is pulled back to a certain point, the unusual stringing causes the pull to drop off to 35 pounds. Then when the arrow is released, the pull builds up again.

"This makes the bow especially good for beginners and women,"

Mr. Garner told the club. "They can achieve the power of a heavier bow with less strength."

To those who still think that a bow should look like something Sitting Bull shot at a wagon train, Mr. Garner points out that everything else has been modernized. So why not archery?

"The object of archery is still the same as it was when Robin Hood shot in the Nottingham tournament," he said. "You shoot at a target. But there have been many innovations since that time. Surprising as it seems to many people, the sport is still going strong. There are very active archery clubs in the Aircraft, Electronics and Electro-Mechanical Divisions."

"Club members will be delighted to help you get started," he said. "There is no older sport than archery, except possibly rock throwing and foot racing, but you will find that it is still as modern as today's newspaper."

WE ASKED THEM—Do You Favor a State Operated Lottery to Reduce Taxes?



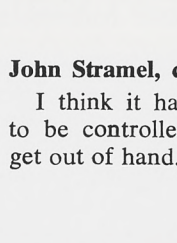
Rose Russell, secretary, Electro-Mechanical:

I think a state operated lottery to help reduce taxes might be a very good idea indeed. Of course, it would have to be carefully controlled to prevent professional gambling interests from getting a hand in it. I've heard that there are lotteries being conducted in other states and everything seems to be working out okay.



W. E. Steepleton, Manufacturing Engineering, Electro-Mechanical:

I'm for it, if the state operated lottery could be controlled properly. And I think it can. After all, horse racing has been well controlled. Also, I think the ticket prices should be kept very low so that people who need the money will not be spending more than they can afford.



John Stramel, coordinator, Electronics:

I think it has some merit, but it would have to be controlled very closely so that it doesn't get out of hand.



Mel Thornton, engineer, Electronics:

Yes. People are going to gamble anyway, so why not let the people reap the benefits. I think it would provide a big boost in supplying funds to our school system and highway department.



Eddy Pollard, target drone assembler, Ventura:

I sure do. If it's painless and reduces taxes then I'm for it. Most people like lotteries anyway. And since everyone has some gambling spirit in them, why not take advantage of it.



Roy Van Winkle, tool and diemaker, Ventura:

Yes. I don't see anything wrong with it. There's also a chance that people could win some money but I doubt that I would; I'm not that lucky.



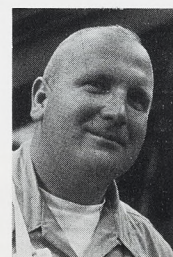
Rachel Razzolini, clerk, Aircraft:

I certainly do favor a state operated lottery. I'm tired of paying someone else's taxes. Of course, such a lottery would have to be conducted properly. I wouldn't want to see one otherwise.



Bob Erspamer, jig builder, Aircraft:

I sure do favor it. If it will reduce our present heavy tax load, anything is a good idea. After all, other states are doing something like it. Nevada, I hear, has a little something going for it that is a big help on that state's taxes.



Classified

Classified ad service is provided free of charge to all Northrop personnel. Ads for agencies, commercial enterprises and private businesses are not accepted. The Northrop News reserves the right to edit or omit ads. Obtain ad form C67 from organization clerk and mail ad to Northrop News, 170, zone 62. Ads are limited to one item and one ad per person each issue. Deadline is noon Wednesday, one week before publication.

Automobiles For Sale

- Pickup Truck**, 1953 Chevrolet, rebilt. eng. & trans., \$450. 714-544-6699. A
- Cadillac**, 1969 Coupe de Ville, 15,000 mi., AM-FM stereo radio, \$5,100. 213-675-2772. A
- Volkswagen**, 1969, \$1,575. 213-547-3746. A
- Ford**, 1964 Galaxie, 2-dr., 289 eng., p/s, auto. trans., \$300. 213-279-2474. A
- Rambler**, 1963, 4-dr., 880, 287 V-8, auto., p/s, a/c, r/h, new tires & bks., \$375. 213-378-1749. A
- Mustang**, 1965, V-8, 289, p/b, p/s, a/c, 46,000 mi., \$800. 213-329-3593. A
- Volkswagen**, 1968 sedan, auto. stick shift, radio, \$1,145. 213-324-2992. A
- Pontiac**, 1964 Grand Prix, p/s, p/b, a/c, many access., \$595. 213-370-0851. A
- Mustang**, 1969 428 Cobra Jet, pwr. d/brakes, p/s, 4-spd., AM-FM stereo, \$3,000. 213-671-6929. A
- Karmann Ghia**, 1970, many access., \$1,900. 213-888-8504. A
- Station Wagon**, 1963 Falcon Squire, \$400. 213-532-1824. A
- Dodge**, 1968 Charger, 440 eng., p/s, auto. trans., special whls., \$1,850. 213-634-3946. A
- Chevrolet**, 1965 Impala S.S., 2-dr., a/c, p/s, p/b, \$1,195. 213-644-4307. A
- Opal Rally**, 1968, new radial tires, \$1,200. 213-542-7831. A
- Chevrolet**, 1955 2-dr., recently o/hailed, Goodyear white letter tires, 8½" Corvette rally whls., AM-FM radio, \$850. 213-320-3226. A
- Station Wagon**, 1965 Ford Country Sedan, 10 pass., fact. air, extras, \$945. 213-295-7030. A
- Triumph**, 1963 TR-4, front d/brakes, r/h, 4-spd., o/drive, \$900. 213-532-5614. A
- Station Wagon**, Chevrolet, 1962 Bel Air, 6-pass., 283 V8, radio, p/s, 65,000 mi., \$450. 213-378-4567. A
- Volkswagen**, 1966 1600 TL fastback, 50,000 mi., r/h, \$900. 213-276-4384. A
- Chevrolet**, 1955, 283 cu. in., 4-spd., Jardine headers, Edelbrock, many extras, \$600. 213-644-6289. A
- Volkswagen**, 1965 1500S squareback, 75,000 mi., \$750. 213-641-9469. A
- Station Wagon**, 1962 Rambler American, 6 cyl., auto. trans., \$95. 213-676-2142. A
- Falcon**, 1964 2-dr., needs work, \$150. 213-545-5962. A
- Oldsmobile**, 1968 Cutlass, 2-dr., a/c, 35,000 mi., \$1,750. 213-939-3817. A
- Toyota Corona**, 4-dr. sedan, r/h, auto. trans., \$1,500. 213-324-8671. A
- Dodge 440**, 1964, 4-dr., auto. trans., \$450. 213-541-3645. A
- Chevrolet**, 1966 Malibu, 4-dr., a/c, AM-FM, p/s, auto., \$995. 213-837-2569. A
- Mustang**, 1969 fastback, w/scoop, 302 V-8, auto., fact. air, p/s, p/disc brakes, console, \$2,550. 714-879-8724. A
- Nash**, 1951 Statesman, 4-dr., \$100. 213-378-5776. A
- Volkswagen**, 1967, radio, new brakes & shocks, \$975. 213-376-6489. A
- Datsun**, 1966 1600, mag whls., lug. rack, needs trans. repair, \$875. 213-545-6719. A
- Mercury**, 1967 Comet Capri, 2-dr., 289 eng., \$1,100. 213-322-2440. A
- Volkswagen**, 1970, sunroof, AM-FM, \$400 & take over \$63 mo. pymts., approx. \$1,500 bal. 213-676-4794. A
- Dodge**, 1967 Dart, 4-dr., 6 cyl., r/h, auto. trans., \$1,000. 213-675-0501. A
- Chevrolet**, 1967 Caprice, 4-dr., h/top, V-8, Comforton air, p/s, Michelin tires, \$1,500. 213-461-2385. A
- Triumph**, 1968 GT-6, fastback, \$1,850. 213-378-8892. A
- Thunderbird**, 1961, full power, a/c, \$300. 213-454-5477. A

Household Items For Sale

- Dinette Set**, round, dropleaf, maple, 4 chairs, 2 leaves, \$80. 213-373-2317. B
- Washing Machine**, Sears, 6 yrs. old, approx. 1 yr. use, \$50. 213-327-3160. B
- Crib**, & mattress, \$25. 213-823-4703. B
- Shower Door** & frame, used, for 25" opening, \$10. 213-421-0900. B
- Sofa Bed**, 72" long, light green & gold leaf design, \$95. 213-323-5497. B
- Stove**, elec., \$40. 213-370-8119. B
- Couch**, 8', matching love seat, contemporary, floral print w/reversible cushions, \$150. 213-677-7661. B
- Washer**, Hoover, portable, \$75. 213-378-7869. B
- Crib**, mattress, chest-of-drawers, white, \$55. 714-842-5968. B
- Dining Room Table**, solid ash, modern, 6 matching vinyl uphol. chairs, \$30. 213-374-9944. B

Miscellaneous For Sale

- Motorcycle**, 1970 Suzuki, 50 cc, 1,300 mi., under warranty, \$225. 213-644-4859. C
- Motorcycle**, Yamaha, 1969 DS6 250, completely setup for dirt, all street equip. & extra parts, \$350. 213-371-4560. C
- School Desks**, 40, \$4 ea. 213-531-8972. C
- Dog**, German Shepherd, female, 2 yrs. old, \$40. 213-679-5177. C
- Skis**, Head Standard, 205, release bindings, \$30. 213-378-1561. C
- Bicycle**, 26" Schwinn, men's, additional child's seat, \$12.50. 213-376-4831. C
- Vacuum Cleaner**, Hoover, upright, \$45. 213-377-6193. C
- Acreage**, 2½ acres, level, near Antelope Valley Fwy. at Crown Valley Rd., water, utils., \$100 dn., \$60 mo., \$9,900. 213-377-1074. C
- Bicycle**, girl's 20" Stingray, \$25. 213-375-7168. C
- Bicycle**, boy's Stingray, has sissy bar, \$10. 213-326-5731. C
- Wetsuit**, Short John, med., \$12. 213-675-7915. C
- World Atlas**, Golden Book, 6 vol., \$3. 213-676-3592. C
- Mini Bike**, 3 h.p. Briggs & Stratton eng., \$60. 213-676-3379. C
- Shotgun**, Browning 12 ga. o/u w/30" bbls. full & modified, \$300. 805-495-7550. C
- Tape Player**, Craig 3501 auto cassette, mount box, \$50. 213-869-3419. C
- Acreage**, 20 acres, on Hwy. 18, in Apple Valley, low dn., 6.5 int., \$18,500 or 4 5-acre parcels, \$5,500 ea. 213-327-3616. C
- Bicycle**, boy's, 20", 3 yrs. old, \$7. 213-831-6480. C
- Acreage**, 5-acre parcel, California City, \$2,500. 213-775-1987. C
- Ladder Rack** & waterproof tool box, made for Datsun pickup truck, \$50 ea. 213-541-1913. C
- Engine**, rebilt. 389, 360 h.p. & positraction rearend, & 4-spd. trans., \$450 or sell sep. 213-370-2960. C
- Motorcycle**, 1970 Suzuki TC90, stripped for trail, 1,400 mi., \$350. 213-823-1788. C
- Boat**, 16' Glasspar, 60 h.p., lge. whl. tilt trailer, many extras, \$950. 714-527-5337. C
- Engine**, 1963 Ford, 223 cu. in., 6-cyl., complete, \$75. 213-371-0687. C
- Mobile Home**, 2-bdrm., 1968 Buddy, bltins, 12 x 60, Rancho La Paz Club, corner lot, terms, unfurn., \$7,500. 714-871-7625. C
- Pups**, collie, AKC, \$75. 213-370-4475. C
- Carpet**, 75 sq. yds., doe beige, used, \$75. 213-645-4849. C
- Tires**, 2 E-70-14, \$50. 213-671-7875. C
- Bicycle**, boy's Stingray, \$18. 213-397-3504. C
- Acreage**, 2½ acre parcels near Palmdale Intercontinental Airport, low dn., low int., \$6,500. 714-871-1373. C
- Cabin Cruiser**, 20' Crestliner, mini-yacht, fiberglass, 2½ bunks, toilet, American tilt trailer, \$2,295. 213-888-8890. C
- Shopsmith**, Mark 5, many access., \$150. 213-645-1274. C
- Door**, sliding, glass, & frame, 12'x6', \$40. 213-324-7059. C
- Acreage**, 2½ acres, fronting on new Ardelanto pvt. airport, M-1, \$75 dn., \$75 mo., \$7,500. 213-378-1026. C
- Surfboard**, Rick, 7', 18" wide, \$60. 213-374-8608. C
- Motorcycle**, 1970 Norton Commando, 750 cc, 75 miles, \$1,350. 213-784-9160. C
- Trumpet**, gold, \$65. 213-375-1660. C
- Cabin Cruiser**, 21', sleeps 2, facilities, 283 Chev. inboard, recently o/hailed, \$1,200. 213-425-3786, 213-421-9986. C
- Tires**, 4, any size 14" or 15" rim, \$89.50. 213-295-0778. C
- Front End**, for Greaves Springer type, complete, used 1 yr., \$50. 213-532-7175. C
- Motorcycle**, 1970 Honda 350, \$500. 213-677-5348. C
- Acreage**, 10 acres, near Medford, Ore., 80-gal. minute well, \$13,000. Box 201. C
- Engine**, for VW, 1500 cc, new rings & valves, complete, all access., \$225. 213-821-4180. C
- Cartridge Player**, Sears, stereo, for car, never used, \$20. 213-676-5270. C
- Pups**, ¾ toy fox terrier, \$10 ea. 213-374-5133. C
- Cabin Cruiser**, Skipjack 20 Flybridge, 200 h.p. I/O, fresh water cooled, tandem trailer w/brakes, S.S., RDF, bait tank, full canvas, \$5,450. 213-541-2071. C
- Motorcycle**, 1963 Honda 250, needs assembling, \$75. 213-370-3821. C
- Camper**, for ¾-ton truck, sleeps 4, \$600. 213-675-1336. C
- Pups**, Irish setter, AKC, male, 6 mos. old, \$250. 213-671-4902. C
- Home**, 2-bdrm., 2 baths, den, family rm., heated pool & dome, decking & patio, landscaping, fenced yd., dble. car gar., f/place, bltins, forced air heat, cpts., dps., near Northrop, \$32,000. 213-676-5395. C
- Trailer**, 1969 Aljo, 21½'x8', self-contained, min. bid \$2,895. Credit Union ext. 1117. C
- Playpen**, folding-type, wood, \$8. 213-377-7156. C
- Shopsmith**, w/access., \$185. 213-371-5072. C
- Engine**, 1955 Ford, 6 cyl., \$40. 213-534-3410. C

Wanted to Buy

- Metronome**, used. 714-546-5891. D
- Aquariums**, 10 gal. or larger & equipment. 714-528-1919. D

Northrop Page Wins New Pact

Northrop Page Communications Engineers, Inc. has received a contract to provide technical and logistical support services for a transportable receiving station which will provide rainfall attenuation data from satellite to earth station.

Intercontinental de Comunicaciones por Satelite, S.A. (INTERCOMSA), a Panamanian corporation, will install and operate the terminal for International Telecommunications Satellite Consortium, operators of the Global Communications System.

Northrop Page will accept the terminal for INTERCOMSA, handle the shipping of the transportable receiving terminal to Panama, and provide technical assistance throughout the life of the program. The terminal will be located at Utibe, site of the Panama Earth Station which was designed, engineered, constructed and installed by Page. It was Central America's first earth station to receive communications via satellite.

Rides Wanted

8 a.m. — 4:42 p.m.

Avalon & Wilmington Blvd., Carson, Barbara Cotton, Aircraft ext. 2123, 213-549-0708.

Springdale & Edinger, Huntington Beach. Paul Eckroth, Aircraft ext. 1477, 714-846-1858.

Rides Offered

8 a.m. — 4:42 p.m.

Springdale & Edinger, Huntington Beach. Paul Eckroth, Aircraft ext. 1477, 714-846-1858.

Wanted to Buy

Bumper Pool Table or pool table, good condition, reasonably priced, slate preferred. 213-324-6703. D

Motorcycle Trailer. 213-324-0366. D

Trailer, 20 to 23 ft., self-contained, 1966 or later model, 2 axles preferred. 714-873-0994.

Microscope, 400 power or more. 213-328-7534. D

Palos Verde Stone, will pick up. 213-379-3134. D

Airplane Propellers, wooden, any size, any condition. Box 202. D

Buick, 1953, need not run, chrome & bumpers in good condition. 213-678-6083. D

Clarinet, wood, reasonable. 714-871-3507. D

House, 3-bdrm., w/family room, nice Torrance area, approx. 1,800 sq. ft. 213-370-4175. D

For Trade

Typewriter, elec. desk model, needs capacitor, trade for sewing machine, elec. or treadle. 213-648-2188. E

Trailer, 1969 Aljo, 17½', self-contained, trade for camper & truck. 213-830-5284. E

Free (To Be Given Away)

Hamster, w/cage & water feeder. 213-329-5805. F

Rentals Offered

Cabin, Moonridge, Big Bear Lake, 3-bdrm., 2 baths, f/place, completely furn., family only, \$125 wk., \$50 w/end. 213-326-7232. G

Cabin, Big Bear City, 1-yr. old, 2-bdrm., 1-bath, \$90 wk., \$45 w/end. 213-320-6486. G

Child Care

Child Care Offered, my home, any amount of hrs., pre-school preferred, Inglewood. 213-671-1652. I

Child Care Offered, my home, east Torrance, infant to 4 yrs., licensed. 213-534-1094. I

Personals

I wish to express my appreciation to my many friends for all the cards, flowers, gifts & phone calls received during my stay at Centinela Valley Community Hospital. CLARA ISABELLE FREAS. L

I would like to sincerely thank all my wonderful friends at Northrop for the lovely flowers, cards, gifts & phone calls during my recent surgery & recuperation period. OLIVE CARTER. L

We would like to express our heartfelt gratitude for the support, sympathy, consolations & expressions of affection received during the recent illness & death of our husband & father, Lou Proctor. CHRIS, BRAD, MIKE, KEN & JEFF PROCTOR. L

I wish to express my sincere thanks to my many friends & co-workers for the wonderful retirement party given in my honor. The memory of this most happy occasion will always be a reminder of your thoughtfulness & friendship. R. E. (RAY) STRONG. L

For Sale or Trade

Cadillac, 1966 4-dr. Calais, a/c, \$1,875 or consider VW camper trade. 213-534-0950. M

Famed Underseas Explorer



JACQUES COUSTEAU, famed ocean explorer, center, is shown at recent San Diego seminar on Undersea Development. At right is Northrop's Robert Clooney, chairman of the Los Angeles Section, AIAA, and at left is Dr. John Conly, San Diego section chairman.

EDITOR'S NOTEBOOK

A dozen more Ventura personnel have joined the ranks of Northrop employees who have flown in the Boeing 747. Their response is enthusiastic.

Honolulu, Hawaii is a favorite for Venturans flying the 747. Maybent Busko of the Metrology Lab flew with her husband, George, to Hawaii for the yearend holiday and traveled 747 both ways. She said it was a "beautiful flight."

Judy Eddy, secretary to Jack Haley, flew home from Honolulu on a 747 after spending New Year's Day with her husband, Maury, in the Islands. She went Continental, as did Mrs. Busko. And Ruth Weiss went to Expo in Japan with her husband, Fred, a former Northrop employee. Mr. and Mrs. Weiss went to special effort to fly home from Honolulu in a 747.

Of the 364 seats available only two were empty, Mrs. Weiss said. "Everything was excellent" on the Pan Am flight, she noted.

Also flying 747 frequently to Hawaii are members of Ventura's Mark 30 underwater target team as they service Mark 30 operations on the island of Kauai. These men include Lou Florence, Orv Kyler, Jim Rummell, Hap Haszard, Larry Kirsch, Les Cole and Ben Beirne.

Flying back to Los Angeles from New York on an American Airlines 747 recently was Elinor Eckels, Ventura nurse. She visited her daughter in New York, toured Washington, D.C. and went to a high school reunion in Philadelphia, Pa. on the yearend holiday.

Agnes Wood, a switchboard operator, and her daughter, Susan, spent Thanksgiving in New York with relatives and flew home on a TWA 747. "We enjoyed every minute of it," said Mrs. Wood.

Finally, Mort Miller, a Ventura commercial artist, flew a 747 to Chicago in November to visit his family. His Continental 747 had "all the room in the world," Mr. Miller said, "I didn't feel cramped like I do on other planes."

* * *

Since 1959 Northrop Corporation has presented 59 college scholarships to the sons and daughters of employees through its support of the National Merit Scholarship Corporation and has just announced plans for additional scholarships this year. While Northrop is kept informed of the academic progress of the scholars in a routine manner, the personal letters of the scholarship recipients add another touch, one that is sometimes interesting and revealing.

Typical is the recent correspondence of Craig C. Vogel expressing his appreciation for the continuing support of Northrop in his studies. Craig, now in his second year of study at USC, is the son of Robert W. Vogel of the Aircraft Division. "I thought that in addition to expressing my thanks for your support, I might pass along some of the impressions of college life to you," he wrote.

"My education here at USC has not been without its share of disillusionments and disappointments, but I am still awed and excited about the tremendous opportunities, both educational and spiritual, which are mine for the asking at the University. Pursuit of knowledge remains my greatest motivation. I hope to gather all that USC has to offer, and more, before my formal education is completed. I have only one statistic with which to document these wild claims, a current grade-point average of 3.9. Again thank you for your support. I hope that other prospective college students will be so rewarded in the future by your program," he added.

NORTHROP NEWS

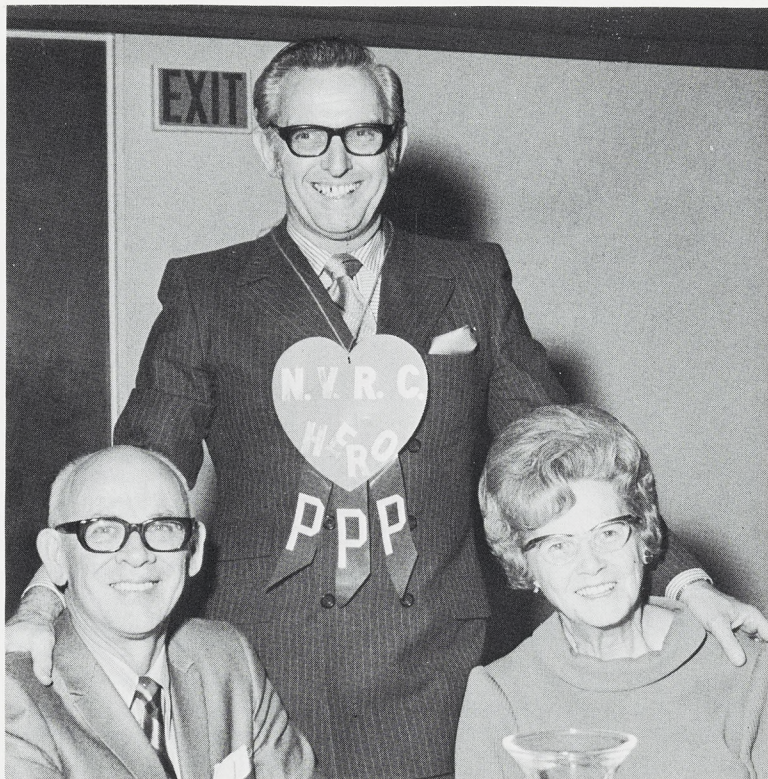
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HE'S A PAST-PAST PRESIDENT (PPP)
Johnnie Via stopped to chat with Mr. and Mrs. Doug Finch.



DOROTHY PRYCHODA, RIGHT, LED OUTGOING SLATE
From left, Bob Calhoon, sergeant-at-arms, Betty Reinisch, secretary, Wade Tilley, vice president, Tony Piscuskas, treasurer.

**PAST-PRESIDENTS
AND OUTGOING
COMMISSIONERS
HONORED AT
REC CLUB DINNER**

RECREATION CLUB ROUNDUP

Rod & Gun Club To Install, Present Awards

Installation of officers and presentation of various proficiency awards will highlight the Feb. 13 dinner meeting of the Rod & Gun Club. The catered dinner will be served at 7:30 at the Chatsworth Center.

Harry Caseldine will be installed as commissioner. Hal Hunsberger is the new vice-commissioner. Other new officers are Ralph Beattie, treasurer, Karl Stoy, rod captain, John Rowe, gun captain, and Dick Small, member-at-large. A secretary has not yet been selected.

Nearly a dozen trophies will be given away to deserving recipients as the year's highlights, both individual and team efforts, are rewarded by the group.

Reservations may be obtained by contacting any of the following area boosters: Administration, Dorothy Prychoda, ext. 385; Manufacturing, Bill Schultz, ext. 1291; or Engineering, Dick Small, ext. 1018. Cost is \$2.50 per person.

GOLFERS TO PLAY AT VALENCIA

Newly-elected officers of the Golf Club have selected the Vista Valencia Golf Course in Valencia Newhall for their Feb. 20 tournament. The first tournament of the year was Jan. 30 at Elkins Ranch in Fillmore.

Warren Sparks is the new commissioner. Bob Jones is vice-commissioner, Fred Longo is treasurer, Jaddis Martin is secretary and Ron Aitkin is the handicap chairman.

Green fees are \$7 for the Vista Valencia tourney. Reservations may be obtained from the following area boosters: Administration, Sue Saulsbury, ext. 444 or 387; Manufacturing, Buck Gilmore, ext. 276; or Engineering, Bill Downs, ext. 558.

POCKET BILLIARDS TOURNAMENT SET

Members of the Pocket Billiards Club will have a busy night Feb. 17 with a one-night tournament at the Simi Bowl tables in the Simi Valley. This bonus tournament will follow on the heels of a semi-annual club tournament now in its final stages.

Among the front-runners in the Feb. 10 play-offs of the bigger tournament are Don Reynolds, Overton Caperton and Commissioner

Dick Ranes. More than a dozen Ventura pool shooters are participating.

Venturans interested in joining the club and/or participating in the Feb. 17 one-night tourney are invited to contact Mr. Ranes at ext. 622. Play begins at 7 p.m. and costs are nominal.

DISCOUNT TICKETS ARE AVAILABLE

Tickets are offered at a discount for a number of Southern California entertainment attractions through the facilities of the Rec Club office, Room 122 in the main corridor of the Engineering Building.

Discount tickets are for Disneyland, Knott's Berry Farm, Sea World, San Diego Zoo, Marineland of the Pacific, Japanese Village and the Hollywood Wax Museum.

Also available are Let's Dine Out tickets, Pacific Drive-In movie tickets are just \$1 per person, and discount certificates for automobiles and auto tires. Fire extinguishers for home, boat or car just \$7.35 at the Rec Club office.

Reservations for some of the Los Angeles Lakers basketball games are also offered. When the Lakers play Boston on Sunday, Feb. 21, at 7 p.m. the tickets are \$3.25. A bus will carry Venturans to that game (for free) as well as to the Lakers vs. Atlanta Hawks game Friday, Mar. 5 at 8 p.m. Those tickets are \$4.25 and so are the ones for the Lakers-Knicks game on Sunday, Mar. 21.

Further information is available by contacting Kathy Miller in the Rec Club office from 11 a.m. to 1 p.m. on Monday, Thursday or Friday.

DANCE CLUB TO LEARN NEW STEP

Ventura personnel interested in the graceful art of ballroom dancing will learn a new step at their monthly meeting Friday, Feb. 12 at the Recreation Club House at 18146 Sherman Way in Reseda.

A professional instructor will be on hand to bring members up-to-date with an hour-long session beginning at 7:30 p.m. Cost is just \$1 per person.

Interested personnel should contact Commissioner Maybelle Trudell at ext. 1370.



ENJOYING HIMSELF
Club Past-President Zack Silvers.



SOFTBALL COMMISSIONERS HAD A GOOD TIME
Ralph Reeves, left with fiancée Phyllis Lieu, and Mr. and Mrs. Claude Vincelette.



PAST-PRESIDENT JOHN LAWRENCE
Enjoying festivities with Paul Prychoda and Mrs. Lawrence.

Venturans Respond Quickly to Quake Damage

Ventura personnel responded quickly and efficiently to damage caused by the major earthquake on Tuesday, Feb. 9 and by Wednesday operations were back to normal.

Clean-up crews in the Production Operations facility had their hands full as 2-3 inches of water from a broken two-inch pipe covered the 200,000 square feet of floorspace.

All but approximately 50 of

the 400 Manufacturing and Quality Assurance personnel were sent home. Those 50 and all available Maintenance personnel, assisted by Ventura County firemen, spent most of the day mopping up as managers and workers joined in donning rubber boots and wielding sweepers.

Equally dramatic was damage in the four-story Administration Building. Plaster fell from cracks created by the 6 a.m. tremor;

pictures hung crookedly, large, sand-filled ash trays were knocked over and shattered and two tall windows were separated on one side from their frames.

Frank Tipton's fourth floor office was a mess. Books had tumbled from shelves, a potted plant fell over and Mr. Tipton's desk sat crookedly with a broken leg.

In General Manager Welko Gasich's office the pictures and plaques were all askew. Mr. Ga-

sich's window was an inch away from a side frame and his secretary, Pat Boies, said a 747 model had taken a short "flight" from the top of a filing cabinet to the floor.

Plaster cracks along the elevator shaft prevented use of the elevator and good-sized cracks in the stairwell ran from the second to the fourth floor.

Clean-up took place smoothly. Workers who aided in the Manu-

facturing mop-up were provided with coffee and doughnuts at 9:30 a.m. and then with lunch in the company cafeteria at noon.

Clark DeSpain, manager of Facilities at Ventura, said overall damage was somewhat limited and the Administration Building remains "structurally sound." No financial estimates were available.

"Everyone responded to the mutual need," noted Mr. Gasich. "The team rose to the situation."

NORTHROP NEWS

VENTURA DIVISION

Northrop Corporation, Los Angeles, California

Vol. 29, No. 3

February 17, 1971

Apollo 14 Splashdown Success Wins Applause from Venturans

Although they were more preoccupied than usual with the major earthquake of the day, Ventura personnel still found time to gather 'round the cafeteria television set and watch the Ventura-produced Apollo Earth Landing System bring Apollo 14 astronauts home safely on Feb. 9.

And, as is customary, when the spacecraft splashed down Venturans applauded warmly. Apollo 14's return from the moon marked the 24th successful performance of the Ventura ELS. It was a return trip, of sorts, for Astronaut Alan Shepard, too.

Astronaut Shepard was the first

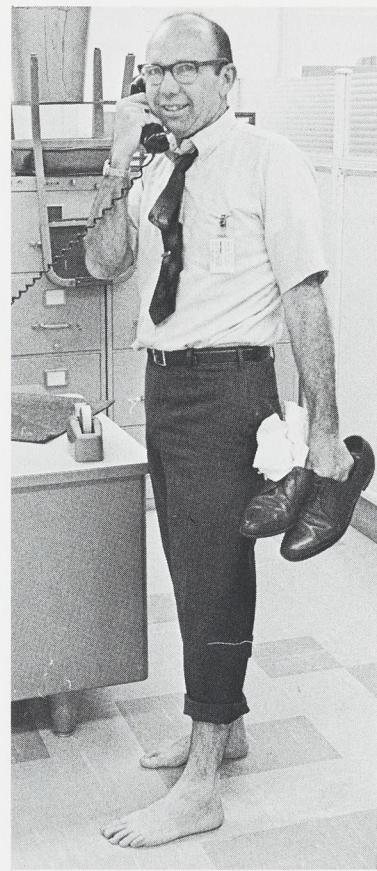
U.S. man in space back in 1961. And when his Project Mercury spacecraft landed it was under the protective canopy of a Ventura (then Radioplane) parachute landing system.

Along with Astronauts Stuart Roosa and Edgar Mitchell, Astronaut Shepard returned with the most extensive moon rock collection yet. The rocks and other scientific data will be analyzed in the Lunar Receiving Laboratory in Houston built and manned by the joint venture of Brown & Root-Northrop.

The Support Operations department of the Electro-Mechani-

cal Division works in the LRL. When the spacemen first returned to earth the Biomedical Recording System, produced by Northrop's Electronics Division, monitored their vital signs.

The Precision Products department of the Electronics Division produces accelerometers (precision motion sensing devices); the Electro-Mechanical Division's Astrodynamics section at Huntsville, Ala. offered real-time trajectory analysis support and the Air Force used the Northrop-produced Airborne Lightweight Optical Tracking System (ALOTS) for tracking at low earth altitudes.



WET DAY IN Q.A.
That's Bob Hutton. (More photos, page 6.)

VENTURA TEAMS WITH HUGHES IN PROPOSAL FOR 'HARPOON'

The Ventura Division has teamed with Hughes Aircraft Co. for a proposal on the Navy's Harpoon anti-ship missile system.

The Harpoon is seen as an air-to-surface and surface-to-surface system designed to protect the fleet from enemy ship attack. It will be launched from ships and aircraft.

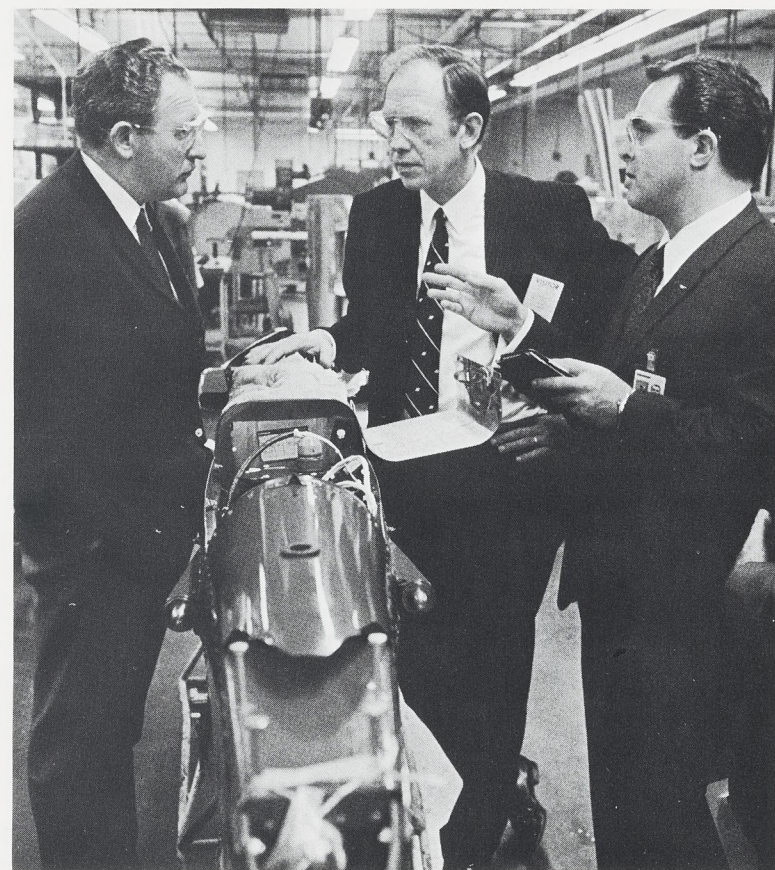
Ventura's proposal team is headed by John Flores, chief engineer and deputy manager of the Engineering department.

The Naval Air Systems Command issued the request for proposals to nine companies, including Hughes. The NASC proposal calls for four phases in engineering development, prototype design and test, a pilot and initial production quantity.

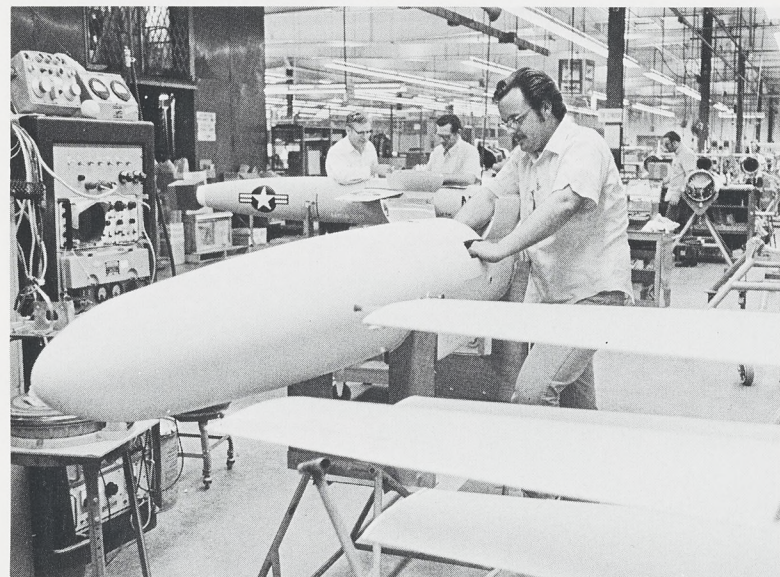
Northrop will have the respon-

sibility for preparing and submitting to Hughes a proposal on the missile sustainer system. This will include analysis, design, test and fabrication of the fuel system, propulsion installation and inlet configurations.

Final technical and proposal data will be supplied this month to Hughes' Aerospace Group, Missile Systems Division in Canoga Park.



TALKING 'KD' WITH VENTURA'S BOB FLINK
Dutch Army's Capt. J. V. D. Kamp, left, and Jan Hillinga, Ventura agent in Holland.



RON SOWTER WORKS ON NAMFI TARGET
Behind white Chukar is U.S. Navy's MQM-74A. Chukar wings at right.

First Targets For NAMFI Come Off Assembly Line

The first set of modified MQM-74A aerial targets specially built for the NATO Anti-Missile Firing Installation (NAMFI) on Crete has come off the assembly line at the Ventura Division.

The units, known internationally as the Chukar and modified to meet NAMFI requirements, wear a coat of white primer paint. Final paint and markings will be applied at the NAMFI range where Northrop is providing full target services for three years.

Some of the modifications include a longer and larger nose to accommodate a 9-inch lens for X-Band radar reflectivity, antennas on the wing tips for an active L-Band augmentor, a tracking aid transmitter and new air speed and altitude transducers for instrumentation.

"The quality requirements for NAMFI are very stringent," noted Don Conlan, deputy NAMFI program manager. "Northrop is paid for successful missions, and not for unsuccessful missions."

The first shipment of NAMFI targets will be shipped to Crete this month along with ground support equipment for tracking, operating and maintaining the targets.

Tom Leichtfuss is lead engineer for incorporating the changes into the NAMFI targets which will perform, essentially, as the basic MQM-74A does in service with the U.S. Navy.

Coordinating the production program are Dick Warner, aeronautical system product manager, and Jack Lee, NAMFI expediter for Production Operations.

F-5-21 NOW F-5E

The U.S. Air Force has announced that the new International Fighter Aircraft (IFA) has been officially designated the F-5E. The Air Force awarded a contract to Northrop Corporation to build this new supersonic fighter last November after an industry-wide competition.

The IFA design is a greatly improved version of the Northrop F-5A fighters which are now in worldwide service. The F-5E will provide U.S. allies, particularly in Southeast Asia, air superiority in defense of their territories in the 1970s. The new fighter has been known by the interim designation of F-5-21. This designation has now been superseded by F-5E.

Lycoming's ALF-502A Engine To Power Northrop's A-X Entry

Northrop Corporation has awarded a contract to the Lycoming Division of Avco Corporation to supply engines for the two prototype A-X aircraft being developed at the Aircraft Division for the U.S. Air Force.

Northrop has selected for its A-X design the Lycoming ALF-502A turbofan engine. In developing the new engine, Lycoming will add a new fan design to the basic gas generator embodied in the flight-proven T55 turboshaft engine.

Lycoming already is at work

on design and fabrication of test engine hardware at Stratford, Conn.

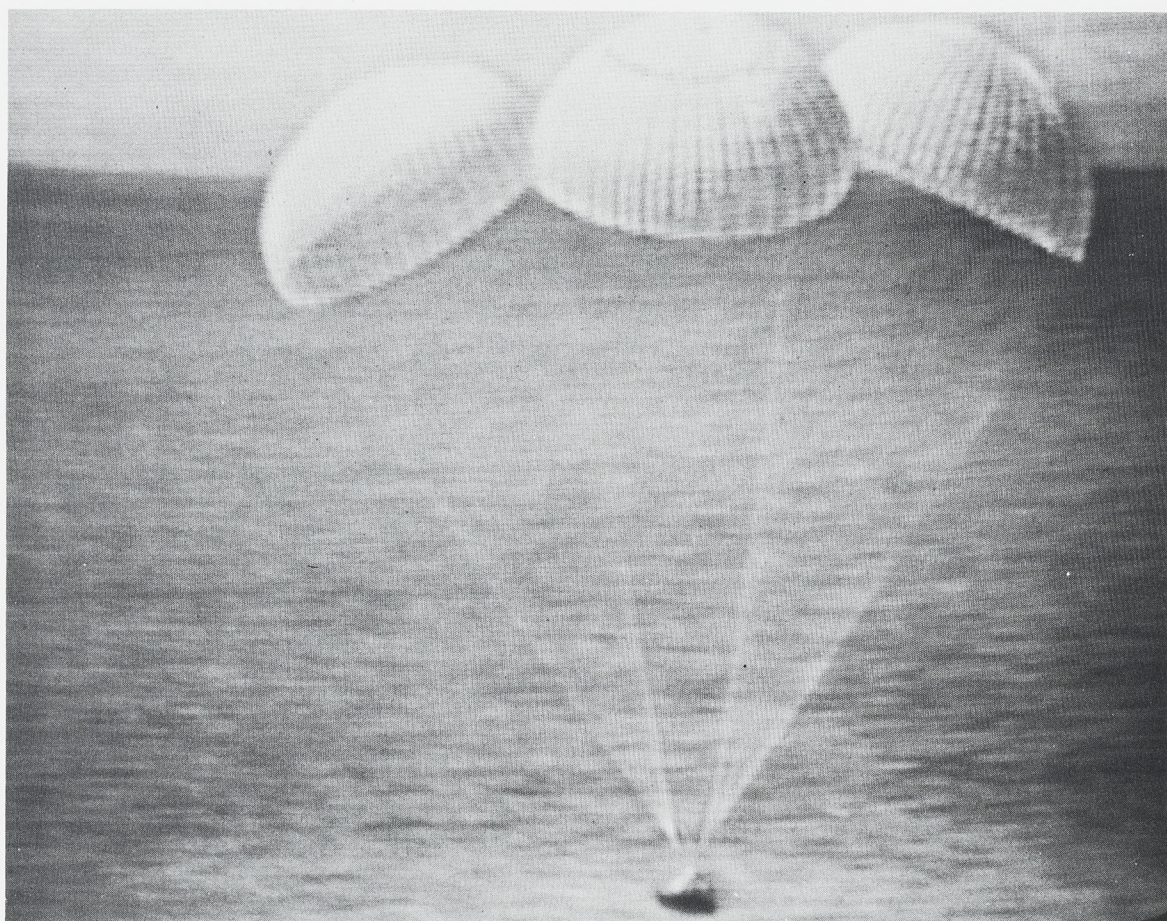
The signing of a contract for engine development and procurement between the airframe manufacturer, Northrop, and the engine manufacturer for a military aircraft is one of the unique features of the Air Force A-X program aimed at developing two different contractors' designs to the point where they can be compared in flying evaluation rather than relying on paper analysis for decision making.

The practice in the past has been for the government to contract for the airframe development and the engine development independently.

Unique Feature

For the A-X, the two competing airframe contractors will not only be responsible for seeing that their selected engines are compatible with the airplane design, but the selection of the company to develop the engine has been left to the decision of the airframe contractor.

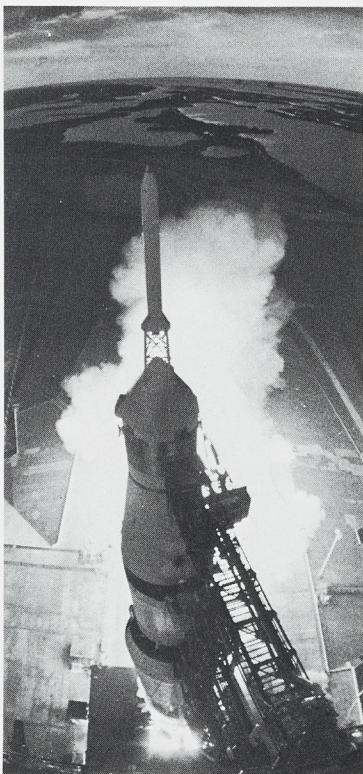
The Journey of Apollo 14



NORTHROP-PRODUCED PARACHUTES BRING APOLLO 14 CREW HOME
Pinpoint landing in the Pacific was so perfect millions saw it vividly on television. Ron McGaffin, Northrop photographer, made the picture above from his home television screen. See Editor's Notebook, page 5.



SUITED FOR VOYAGE TO THE MOON
Astronauts Edgar D. Mitchell, Stuart A. Roosa and Alan B. Shepard leave operations center enroute to Apollo 14 launch vehicle.



AT LIFTOFF
The 363-foot tall Apollo 14 vehicle is ready to clear launch pad in this photograph made by a camera mounted on the mobile launch tower.

Quake Rocked Ventura



MOPPING UP FROM QUAKE damage was the order of the day at the Ventura Division's Manufacturing Facility on Feb. 9 as a two-inch pipe broke and virtually flooded the 200,000 sq. ft. plant. Foreman Ted Szostek was busy in the lightly flooded Paralab, but 350 Manufacturing personnel were sent home. Ventura was hardest hit of all Northrop facilities as plaster was cracked, bookshelves almost emptied and pictures were knocked askew along with the flooding. Several vases were upended and pictures fell from their hooks at the 15-story Corporate offices in Century City.

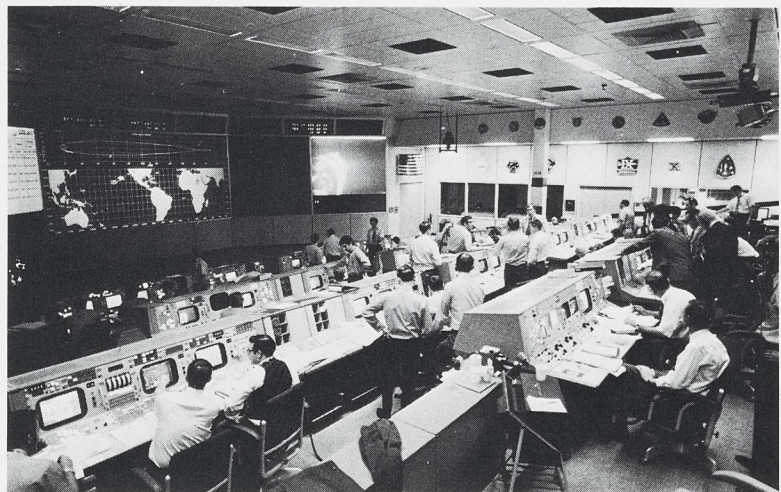
Credit Union Says Thanks for Support

Northrop Credit Union, now celebrating its Silver Anniversary, through its officers, board of directors and general membership has passed a special resolution.

Action came at the Credit Union's annual meeting early this month. The resolution read:

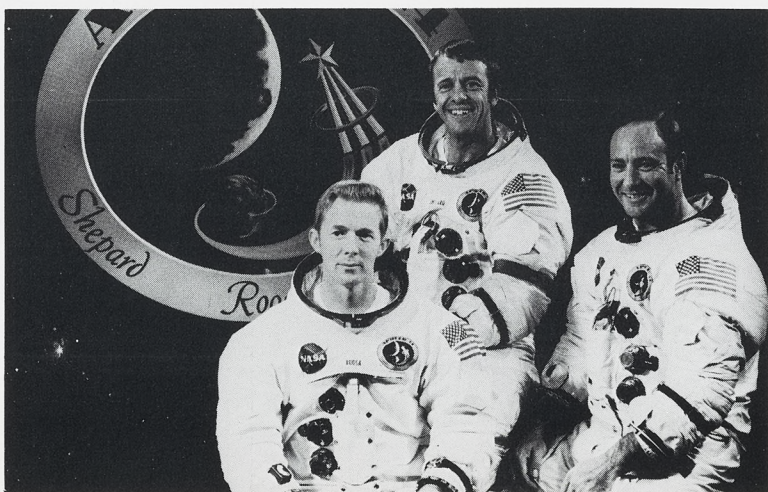
"Be it resolved that the Northrop Credit Union is deeply indebted to its sponsor, Northrop Corporation, for the support and guidance that it has received from the corporation and its

management through its 25 years of growth and service to its members. Further, that the Credit Union officers, directors and members are justly proud of the integrity of the Northrop name which has enabled the Credit Union to become recognized as a financially sound institution, paying an exceptional dividend, and providing a variety of specialized services with an outstanding reputation among credit unions in Southern California."



MISSION CONTROL AND THE MEN

Tense moment, above, in mission control came during one of six attempts to dock Command Module with Lunar Module. Lunar Module is seen on giant screen at right center. Below is a closeup of the Apollo 14 crew now credited with the most productive space venture ever.



Special Report—The U.S. Supersonic Transport Program

Decisions Must Be Made Soon in Congress Involving Continuation of SST Development

The United States Congress recently approved interim funding for the development of the United States Supersonic Transport (SST), providing money to carry the program through March 30, 1971.

In the weeks just ahead Congress will again consider the all-important question of whether the United States will continue its SST program or eliminate it.

To say the SST is a controversial program is almost an understatement, for seldom have so many people stood ready to take sides on an issue. This awareness and interest is stimulating for it is symbolic of one of the cornerstones of the American way of life.

Unfortunately, however, opponents of the SST have so clouded many of the basic issues that an atmosphere has resulted in which the average person finds it hard to determine what to believe.

For the record Northrop Corporation is firmly committed to the continued development of the SST.

Why The Concern

Northrop's interest stems from many factors. First, the company holds a \$12 million contract to build the forward cabin and nose section of two prototype SSTs. Northrop is investing its own funds in portions of this work for special facilities and in cost-sharing common among program participants. Production contracts could result from this work at a later date, although there is no guarantee of it. In addition, Northrop desires to aid in the continuing advancement of aerospace technology and in aiding the United States balance of trade.

Backing this interest are many Northrop officials who are appearing as speakers before civic, fraternal and business groups to discuss the total aspects of the

SST program. Companies in the Southland who are behind the push for continuation of the development of the SST are also taking part in special information campaigns.

And there is a special way in which Northrop employees who feel strongly about the SST development effort may take a stand on the issue. A separate article accompanying this report explains how it works.

Northrop News recognizes the right of every employee to decide for himself whether or not he joins in this effort, just as it acknowledges the impact the interest of employees might have in the final outcome.

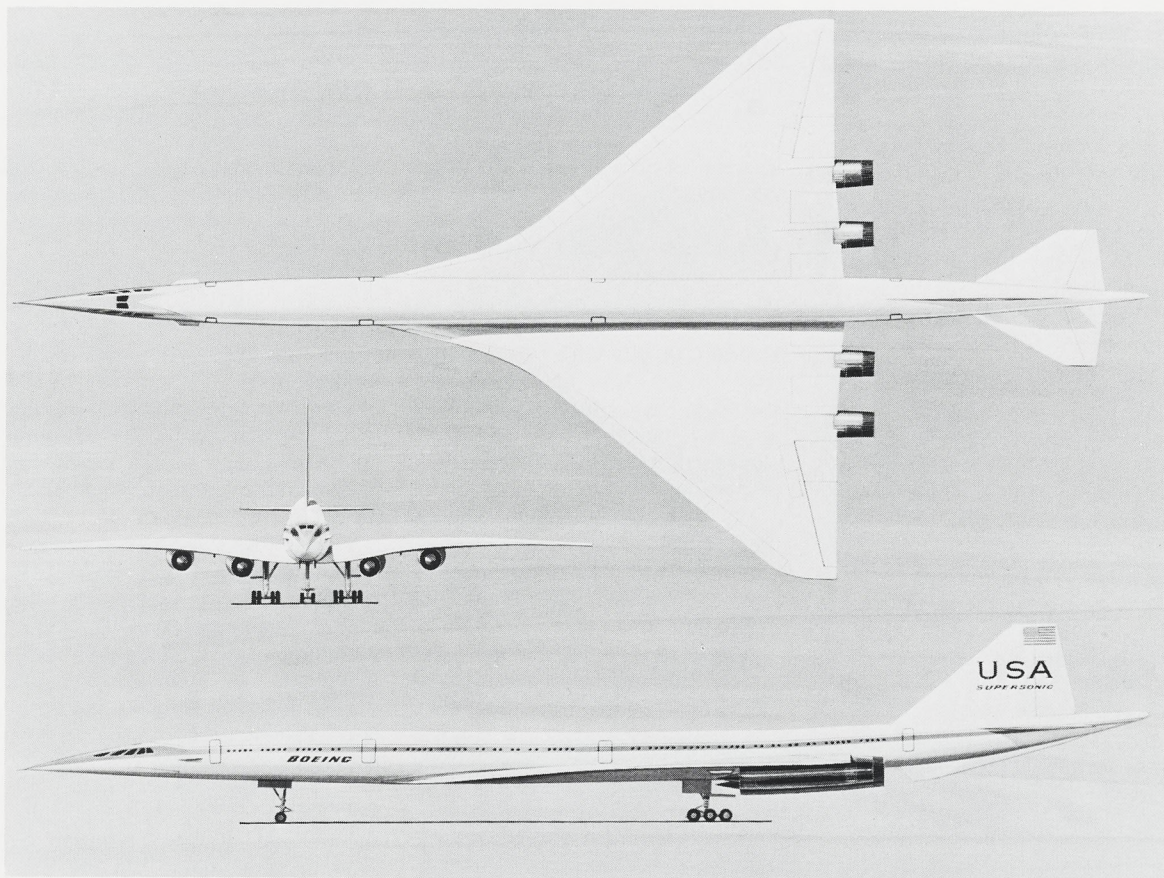
Decision is Yours

The News feels that employees who are informed on the subject can best exercise their own judgment on the matter. Thus this special report, and subsequent reports to be presented later, related to the SST development are to be aimed at eliminating some confusions and misconceptions which now exist.

Because the total SST program has raised so many questions, the News felt that a question and answer approach to the subject might be best in weeding fact from fantasy. Answers provided are based on accepted information from individuals, firms and research agencies, both private and governmental.

In general, opposition to the SST program seems to fit generally into two basic areas, one pertaining to costs and the need for an SST and the other concerning the possible pollution of the environment by the SST.

In this report, the News concentrates on the issues raised and the answers relevant to each issue involving pollution. Subsequently, reports will touch on cost factors, the need and related topics.



THREE VIEWS OF THE UNITED STATES SUPERSONIC TRANSPORT
SST prototypes will be built of titanium to withstand heat generated in 1,800 mph flight.

SST DELIBERATION

How You May Take An Active Role

Northrop employees who wish to take an active role in seeking continuation of the development of the United States Supersonic Transport (SST) can best do so by making their interest known to their duly elected representatives in Washington.

For those who have personal contacts with these officials or their representatives in the Southland, the best method is to contact these officials and express an interest in the program.

An alternate means is via a personal letter to the official in

Washington, outlining any personal feeling on the matter and asking for his support in seeking appropriations for the program.

For those who wish to take part, but do not care to write letters, special provisions have been made. All Northrop Personnel Activities outlets have a limited supply of pre-printed cards containing a special message to both Congressmen and Senators in Washington. The cards to the two U.S. Senators are pre-addressed. Those to Congressmen must be addressed. Em-

ployees must sign the cards and include their home address on each. To assist you, Personnel Activities will also provide a special map showing the outline of Southern California congressional districts and the names of Congressmen representing these districts, plus their business address. Those writing personal letters may find the latter useful.

These services are merely a means of helping those who desire to become active in the program. All require the individual to take the initiative.

Issues Raised And Relevant Answers to Possible Pollution

The Issue The SST will create an endless wave of sonic booms that will break windows, stampede cattle and knock housewives off their kitchen stools.

The Answer The government has made it a law that the SST will not fly at boom-producing speeds over populated areas. It will fly supersonic only over oceans and unpopulated areas, such as the polar region. Sonic booms result from over-pressures. When fighter-type aircraft have broken the so-called sonic barrier and caused damage below they have created over-pressures of from 60 to 80 pounds per square foot. SST over-pressures will be four pounds per square foot at climb, two pounds at cruise speeds. This results in a noise about equal to a thunder clap from a lightning bolt that hits a half mile away.

The Issue Sonic booms from the SST will damage ships at sea.

The Answer Not according to government reports which show that SST over-pressures will be much less than the difference in pressure between the top and bottom of a small ocean wave.

The Issue The SST will generate excessive noise at airports.

The Answer The SST's engines will be generating about as much thrust as four Boeing 707s. However, Boeing, the government and General Electric are engaged in a major program to curtail this noise. This effort is proving successful in its major aspects.

The Issue Takeoff noises of the SST will be damaging.

The Answer Because of its excess power, the SST can clear airports and nearby communities quickly. Preliminary tests show that the SST should prove better than today's aircraft in meeting governmental restrictions on takeoff noises.

The Issue On approaches to airports the SST will be too noisy.

The Answer A unique engine inlet required for supersonic flight will help choke noises coming from the front of engines. Flight controls, added instruments and throttle settings possible on the SST will further curtail such noises, making the SST superior to today's aircraft in this phase of operation.

The Issue The SST will pollute the air excessively.

The Answer A fully-loaded SST, traveling at 1,780 mph, won't emit any more air pollutants per mile than three automobiles traveling at 60 mph. Turbine engines convert less than one per cent of their fuel consumed into air pollutants as compared to 30 to 50 per cent for reciprocating engines used in land vehicles. SST engines will be virtually smoke free.

The Issue A permanent high-altitude overcast resulting from crystallized SST contrails will blot out the sun and change the earth's climate.

The Answer Condensation trails are seldom, if ever, formed at 60,000 to 70,000-foot altitude at which the SST will cruise. Noted research agencies report that a fleet of SSTs would have no appreciable effect on the earth's normal atmospheric balance.

The Issue SST passengers might be exposed

to too much radiation in the thin atmosphere at high altitudes.

The Answer Military airmen and astronauts have spent much time at such altitudes with no evidence of radiation hazards. Federal standards recommend that the general public not be exposed to more than 500 millirems of radiation per year. A person would have to make 250 trips from Seattle to New York at altitudes flown today to receive an additional 500 millirems of exposure. Flights at 65,000 feet would increase the radiation dose by a factor of three, but at SST speed the exposure would only be one-third as long. Thus the SST passenger would not encounter any more radiation than today's traveler who has suffered no ill effects.

The Issue Congestion on the airways and airports are environmental problems, too.

The Answer The SST will fly at 60,000 feet and above, a complete new chunk of airspace, so it will be helping to alleviate the airways' congestion problem. The SST's shorter time of flight, due to faster speeds, will make possible wholly different schedules in terms of departures and arrivals. Since it can depart earlier or later and still arrive at its destination on the same day, the SST will help lighten the airports' burden.

The Issue Supersonic transportation via SST is just not good for people in general.

The Answer Supersonic aircraft from many nations have flown supersonically for over 500,000 hours in the last 10 years all over the world. Fish continue to swim, flowers to grow and people are seldom disturbed.

FOR TONY GUERREIRO

A New Career—Hypno-Therapy

Tony Guerreiro is using the same type of analytical research that he has used at Northrop for the past 30 years to investigate extra sensory perception.

His studies include the possibility of mental telepathy, age regression (recalling ancestral memories), and age progression which is psychic prediction of future events. This was the subject of his lecture at the three-day seminar on hypnotics, Feb. 12-14 at the International Hotel in Los Angeles.

"I am not interested in amateur dabbling in either ESP or hypnotism, which I have practiced since I was 14," Mr. Guerreiro said. "During the past few years, I have worked with a group at UCLA on mental telepathy studies. These are scientific investigations, involving the study of people who are psychic, an attempt to discover why they are

so, and working toward the hope of being able to apply the results to reliable reproduction of these seemingly strange gifts."

Mr. Guerreiro's interest in psychic phenomenon is rooted in his interest in hypnotism which began when he was 14. He continued his interest through the rest of his life, but only began seriously practicing it 17 years ago. At that time his wife became ill, suffering periodic hemorrhages. He was told by the doctor that the trouble was psychosomatic and that only a psychiatrist or a hypnotist could cure her. The psychiatric treatments would take two years.

"I had never tried hypnotherapy," Mr. Guerreiro recalled, "but in the circumstances I thought I would try. It worked perfectly."

Since that time he has expanded his work in this field, and has aided doctors and hospitals,

becoming a professional two years ago.

"When doctors are faced with psychosomatic illnesses where they feel a professional hypnotist can aid them, they call me," he said. "I only do hypno-therapy for my clients through registered doctors and under their direct supervision."

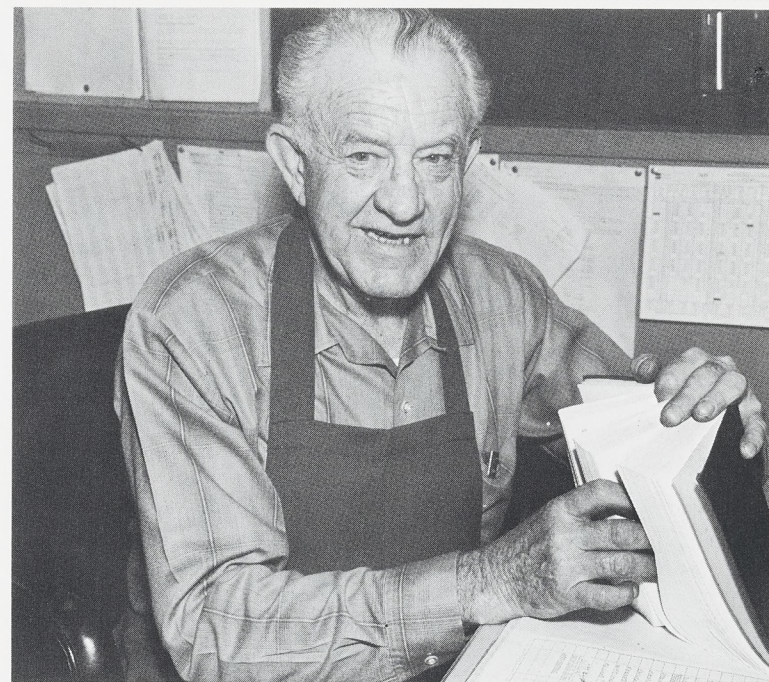
Although he has spent almost his entire lifetime working with hypnotism, Mr. Guerreiro is "dead set against doing stage hypnotism."

"It is a farce for me to use such a fantastically useful tool for amusement when it can be used for the good of mankind," he said.

One of the most useful aspects of hypnotism, he revealed, is self-hypnosis. "I have been able to help more people this way—including myself," he said. "Self-hypnotism is achieved by the subject learning to relax his body and conscious mind. At this point his subconscious mind is suggestible. Then the proper suggestions are fed into it. At the conclusion, the subject awakes refreshed as from a good sleep. 'If the subject's trouble is nervous tension, as is often the case, the hypnotic state alone will relax him.'"

In applying his teachings to himself, he noted, "I had two patents issued for my work previous to studying self-hypnosis. Then after I began to apply it, my creativity multiplied, and I have achieved 35 patent disclosures."

Mr. Guerreiro plans to retire in March and will devote himself completely to applied hypnosis. In fact, his school is called Academy of Applied Hypnosis located in Hawthorne. He is presently a Manufacturing Research specialist at the Aircraft Division. In 1968 he was named West Coast Man of the Year in Plastic Tooling, and in 1969 received the Man of the Year distinction nationally.



HAND BOOKBINDING IS HIS HOBBY
James Klinefelter likes challenge of exacting work.

Northrop Man Revives Lost Art—Bookbinding

Forty-years ago an heirloom Bible fell to pieces and as a result James Klinefelter, metal fabrication mechanic with Manufacturing Operations Support, Aircraft Division, took up the lost art of hand bookbinding.

Now almost a half century later, Mr. Klinefelter is still binding books. "But only as a hobby," he says. "The work is so exacting and takes so long that anyone who tried to do it commercially would starve to death."

The heirloom Bible that started him on his lifelong hobby originally belonged to his great-great-grandfather. The first date given in the family register in the Bible is 1832, when Andrew Jackson was President of the United States. It was a tradition in Mr. Klinefelter's family that the Bible be passed down to the oldest grandson.

When he obtained it in the early 1930's the book was in very bad condition. He wondered if

there was anything he could do about it.

Earlier as a child he had wondered how a book was put together and he had torn one up to see. With that experience, he thought he could do a credible rebinding job on the old Bible. He completely disassembled the book, removed all old glue and the broken binding.

"It had to be delicately handled," he said. "The pages were very brittle. I had to work so carefully and slowly that the job took several weeks to finish."

However, the results were so pleasing and he had so much fun that he has continued hand binding books as a hobby during these next forty years.

Slow Process

In rebinding a book he removes the old binding and the thread holding the "signatures" together. A signature is a group of pages folded together. These are sewn together, and then shaped to give a slightly rounded spine. Then the "case" or cover is made by covering hard cardboard with either cloth or plastic. This cover is then fitted on the book, the end papers glued and the job is finished by lettering the title on the spine.

He uses no special materials. He gets what he needs from the variety store.

NEW RTD BUS SERVICE STARTS

Southern California Rapid Transit District this month began operation of a new bus line linking the International Airport area with Lynwood generally along El Segundo Blvd. that may be of interest to Northrop personnel in the Hawthorne complex.

Called Line 123, the service operates every 30 minutes from approximately 5 a.m. to 7 p.m. weekdays and every 40 minutes on Saturdays and Sundays.

Beginning at the intersection of Century and Airport, Line 123 moves east via Century, Sepulveda, Mariposa, Douglas, El Segundo, Wilmington, Imperial Highway and Century into the Lynwood area. Full transfer privileges to all district lines are available.

Personnel Activities have a limited number of route schedules for the new line for employees interested.



TONY GUERREIRO IN PENSIVE POSE
He will expand his studies in extra sensory perception.

WE ASKED THEM—To What Length Should We Go in Space Exploration?



Penny Trueblood, administrative assistant, Aircraft:

I feel we should go on with the space program and maybe accelerate it a little. I realize that there are other things important to other people, but space exploration is important too.

Les Anderson, Field Engineering, Electro-Mechanical:

I've always been for progress. We would never have been where we are today if Columbus hadn't gone into the unknown. Personally, I'd like to know what is out there in space.



Jean Berry, planning analyst, Electronics:

We should do as much as we can. I feel it is important for the U.S. to maintain its position in the world's sphere. Besides, spin-offs from the space program are many and can benefit the people here on earth.

Harry Wirth, estimator, Ventura:

We should continually advance the state-of-the-art and always push the limits of our known capabilities.



Pat Richards, service publications assistant, Electro-Mechanical:

I think we have gone about as far as we should go right now. We should take care of pressing ecology problems first right here on earth. I am thinking of the smog problem, traffic problems, and the like.



G. W. Little, Marketing research analyst, Electronics:

I feel there should be no limitations in our space exploration program. It has been amply demonstrated that there are virtually unlimited benefits to be derived for our society from the transfer of space technology and know-how to the civilian sector.

Shirley Combs, Materiel coordinator, Ventura:

If we're going to continue with the space program I think our efforts should be limited. We have lots of problems here on earth that should be settled first.



Classified

Classified ad service is provided free of charge to all Northrop personnel. Ads for agencies, commercial enterprises and private businesses are not accepted. The Northrop News reserves the right to edit or omit ads. Obtain ad form C67 from organization clerk and mail ad to Northrop News, 170, zone 62. Ads are limited to one item and one ad per person each issue. Deadline is noon Wednesday, one week before publication.

Automobiles For Sale

- Volks wagon, \$1,750. 213-370-3806. A
- Volks wagon, 1958 sedan, rebilt. eng., r/h, new brakes, \$300. 213-676-6565. A
- Station Wagon, 1964 Volkswagen 1500 Squareback, eng. o/hailed, radio, \$650. 213-377-3858. A
- Station Wagon, 1967 Dodge Coronet, 9-pass., fact. air, auto. trans., p/s, pwr. d/brakes, 383 eng., lug. rack, \$1,500. 213-835-8549. A
- Station Wagon, 1970 Toyota Corolla, still under warranty, \$1,750. 805-498-8461. A
- Plymouth, 1965 Barracuda, p/s, V-8, auto. 4-spd. trans., r/h, \$750. 213-329-1811. A
- Station Wagon, 1962 Mercury, 9-pass., Colony Park, 390 cu. in. eng., Cruiseomatic trans., p/b, p/s, a/c, \$150. 714-539-9339. A
- Mercury, 1965 2-dr. h/top, r/h, a/c, new tires, rebilt. trans. & carb., \$825. 213-679-9335. A
- Oldsmobile, 1959, p/b, p/s, a/c, \$200. 213-598-3552. A
- Oldsmobile 88, 1964, auto., p/s, p/b, r/h, \$450. 714-828-0953. A
- Corvette, 1969, 4-spd. trans., a/c, p/s, p/b, new tires, 427 cc, \$4,000. 213-397-4732. A
- T-Bird, 1964, fact. air, full power, major tune-up recently, \$850. 213-865-5084. A
- Camper-Bus, Volkswagen, 1965, new eng., \$1,500. 213-791-3390. A
- Pontiac, 1966 Tempest Sprint custom, p/s, p/b, r/h, auto., \$750. 714-839-7908. A
- Pickup, 1971 Ford, 1/2 ton, Ford Custom cab, 302 h.p., V-8, auto. trans., \$3,400. 805-498-3854. A
- Mercedes Benz, 1968 250S, 4-dr., auto., p/s, air, \$4,700. 213-834-3796. A
- Chevrolet, 1962 Impala, 2-dr., \$125. 213-672-8490. A
- Triumph, 1965 Spitfire, vinyl top, \$795. 213-370-0851. A
- Mustang, 1966, V-8, power, \$1,250. 213-324-0366. A
- Mustang, 1967 Fastback GTA 390, pwr. d/brakes, p/s, a/c, AM-FM radio, glass belt tires, \$1,395. 213-378-3600. A
- Oldsmobile 98, 1968, full power, min. bid \$1,995. Credit Union ext. 1117. A
- Dune Buggy, newly bit., street legal, fiberglass body, top, roll bar, needs VW running gear, \$395. 213-821-4180. A
- Dodge, 1968 Charger R/T, 440 eng., p/s, p/b, a/c, auto. trans., rally whls, \$1,995. 213-635-1998. A
- Chevrolet, 1967 Chevelle Malibu, 2-dr., V-8, p/s, auto., 40,000 mi., \$1,300. 213-372-7320. A
- Step Van-Camper, 1962 International, 12 1/2', conv., \$1,495. 213-295-0778. A
- Edsel, 1959 Ranger, 2-dr., \$1,500. 213-327-6918. A
- Dune Buggy, 110 h.p., 4 dirt, 4 sand tires, SW gauges, top w/windows, \$1,890. 213-371-9966. A
- Ford, 1961, a/c, \$175. 213-428-7487. A
- Volks wagon, 1966 Squareback, 42,000 mi., r/h, AM radio, \$1,050. 714-557-4489. A
- Dodge, 1967 Dart, 4-dr., 6-cyl., r/h, auto. trans., \$895. 213-675-0501. A
- Continental, 1966, 2-dr., full equipment, leather int., orig. owner, \$1,800. 213-372-5485. A
- Corvair, 1961 Monza coupe, 110 h.p., 4-spd. trans., radio, 65,000 mi., \$250. 213-541-1625. A
- Plymouth, 1969 Roadrunner, 383 eng., r/h, p/s, auto. trans., mag. racing whls., 19,000 actual mi., \$1,995. 213-329-4451. A

Household Items For Sale

- Dryer, elec., Kenmore Delux, 1963 model, copertone, \$50. 213-754-1488. B
- Dishwasher, portable, Sears, copertone, 4 yrs. old, \$65. 213-671-1102. B
- Bathroom Pullman, 5', 2 drws., 3 doors, marblean top, 7" splashback, \$40. 213-869-2284. B
- Washer, Hoover, portable, \$75. 213-375-0689. B
- Fireplace, Franklin, chimney, flue, firescreen, wood grate, \$50. 213-371-7063. B

Miscellaneous For Sale

- Home, 3-bdrm., Big Bear, forced air heat, gar., cpts., 3 blks. from village, furn., \$25,000. 213-670-4702. C
- Trailer Hitch, custom hvy. duty, for Datsun station wagon, \$20. 714-968-5343. C
- Motorcycle, 1967 Honda, SL 90 Scrambler & helmet, \$180. 213-676-5219. C
- Chains, 7:60-15 to 8:50-14 & 7:10-15 to 8:00-14, \$7 ea. 213-324-7869. C
- Sailboat, 29' Dolphin, inboard, all sails, \$6,500. 213-374-7928. C
- Lot, acre at Lake Los Angeles, near new International SST Airport, T.D. int. rate 6.75%, \$6,500. 213-377-8969. C
- Motorcycle, 1970 Suzuki TC90, 1,500 mi., trail ready, \$325. 213-823-1788. C

Miscellaneous For Sale

- Acreage, 5 or 10-acre parcels, near Mt. Lassen National Park, 3,000' alt., \$850 acre. 213-676-3050. C
- Boat, 33' cutter, European const., built in '66, Volvo Penta eng., \$13,500. 213-374-6519. C
- Mini-Bike, Honda Trail 50, \$150. 213-324-6260. C
- Rabbit Cages, 2 lge. w/roof, \$5 ea. 714-842-7052. C
- Tent, 10'x18' Sears, dble. side rooms, outside poles, 3 cots, \$135. 213-371-2664. C
- Tent, VW camper-bus, \$95. 213-374-6791. C
- Motorcycle, 1969 Yamaha 100 sgl. for dirt, exp. chamber, elec. start, \$250. 213-645-6211. C
- Acreage, 20 acres, Hwy. 18 in Apple Valley, low dn., 6.5 int., seller carries paper, \$18,500 or \$5,500 5 acres. 213-327-3616. C
- Pups, collie, show stock, \$50 & up. 213-370-4475. C
- Kittens, Siamese, sealpoint, 8 wks. old, \$20-25. 213-644-7716. C
- Ham Gear, Hammarlund HQ-170, Johnson pacemaker CW-AM-SSB 90W, Mosley triband beam, \$250. 213-534-0950. C
- Hardtop for Datsun sports car, \$175. 213-545-6719. C
- Snow Chains, fit 7.10 to 8.25-14 tires, never used, \$10. 213-375-1685. C
- Bicycle, Schwinn, 26" girl's, \$20. 213-374-8608. C
- Surfboard, 7'8" x 22.5", \$50. 213-474-7910. C
- Truck Tire, H. Miller wide-tread, tubeless, Goodyear 800-16.5 8-ply & 8-lug. whl., \$40. 213-377-3487. C
- Cabin Cruiser, 20' Crestliner mini-yacht, fiberglass, Interceptor inbd-outbd., 2 1/2 bunks, canvas, American tilt trailer, \$2,295. 213-888-8890. C
- Acreage, 2 1/2 acre parcels near Palmdale Intercontinental Airport, low dn. pymt. & int., cash discount, \$6,500. 714-871-1373. C
- Trailer, 1969 Aljo, 21 1/2'x8', self-contained, min. bid \$2,895. Credit Union ext. 1117. C
- Motorcycle, 1964 Honda Sports 90, \$150. 213-371-0085. C
- Motorcycle Jacket, police-type black leather, size 42, \$25. 213-675-1336. C
- Guitar Case, 41", for Spanish or folk, extra hvy. duty, \$20. 213-325-4580. C
- Kittens, Himalayan, sire dble. champ., CFA registered, shots, \$60 & \$75. 213-867-1479. C
- Typewriter, Smith-Corona, portable, elec., less than 1 yr. old, carrying case, \$100. 213-295-9509. C
- Pups, poodle, AKC, \$50-\$75. 213-866-4104. C
- Books, Childcraft—The How & Why Library, 15 vols. by Fld. Enterprises Education Corp., \$25. 213-370-6734. C
- Tape Recorder, stereo, 2 mics., 2 bltin spkrs., smoked glass dust cover, \$200. 213-754-3665. C
- Typewriter, Royal portable, carrying case, \$25. 213-326-5731. C
- Enlarger, Solar 105mm lens, will take negs. from 35mm to 5x7", \$75. 213-630-4188. C
- Acreage, 5 acres, Antelope Valley, view, near paved rd., \$400 dn., \$6,000. 213-378-1026. C
- Television, 16" b&w Philco, portable, \$35. 213-430-7388. C
- TV, 21" RCA, color, metal cabinet w/legs, \$60. 213-327-6373. C
- Baby Buggy, English convt. pram, sun canopy & cat net, \$39. 213-645-7972. C
- Wheels, E-T mag, 14x7, set of 4, complete w/chrome nuts, spacers & hubs, used 3 months, \$89. 714-894-2587. C
- Pups, basset, AKC, champ. sired, shots, \$100. 213-677-6204. C
- Record Player, auto., stereo, portable, 5 yrs. old, \$30. 213-788-8293. C
- Home, 2-bdrm. w/1 bdrm. rental in rear, R-2 lot, \$1,500 dn. at 7 1/2%, near Northrop, \$20,000. 213-327-2279. C
- Piano, Jacob Doll, upright, refinished, bench, \$125. 805-495-1448. C
- TV, 19" Zenith, b&w, metal cabinet, stand, remote control, needs picture tube, \$15. 213-679-8452. C
- Travel Trailer, 15' Westerner, \$450. 213-377-3806. C
- Acreage, 10 acres, near Medford, Ore., 80-gal. minute well, \$13,000. Box 301. C
- Home, 2-bdrm., 2 baths, den, family rm., heated pool & dome, decking & patio, landscaped, fenced yd., dble. car gar., f/place, bltins, new roof, dps. & cpt., near Northrop, \$32,000. 213-676-5395. C
- Tires, 2 775-14, fiberglass belted wht. walls, hardly used, \$20. 213-678-7008. C
- Machinist Box, Kennedy, \$15. 213-664-6165. C

Wanted to Buy

- Bicycle, men's 10-spd., good condition. 213-865-1344. D
- Volks wagon, 1961, for student transportation, reasonable price. 714-633-5826. D
- Aquarium, 10 gals. or larger & equipment. 714-528-1919. D
- Water Skis, small, for boys ages 7 & 8. 213-329-6625. D
- Dining Room Set, French or Italian provincial, old, table, 6 chairs & buffet. 213-892-5456. D
- Cement Mixer, portable, 2 or 3 cu. ft., in fair condition. 213-423-6325. D
- Drafting Table, good condition. 714-536-9929. D

Rentals Offered

- Apt. 2-bdrm., furn., all extras, lge. pool & patio, closed gar., near El Camino, adults, \$180. 213-329-5986. G

ON P-61 BLACK WIDOW

Ex-Fighter Pilot Joins AIAA Panel

Fred M. Kuykendall, Jr., a World War II pilot who amassed hundreds of flight hours in the Northrop P-61, has been added to the panel of men who will discuss the famed Black Widow at the February meeting of the AIAA Historical Committee.

The meeting is scheduled to begin at 7 p.m., Feb. 26, in the Northrop Recreation Club, 12626 Chadrone Ave., Hawthorne.

Mr. Kuykendall, currently a vice president of Del Mar Engineering Company, will join other key people on the program who had major roles in the design, development and operation of the P-61.

Other panel members include retired Air Force General Winston W. Kratz and Irving L. Ashkenas. Ken Rust will serve as panel moderator.

General Kratz was formerly commander of the 481st Night Fighter Squadron and a special advisor on night fighter affairs to the Ninth Air Force. Mr. Ashkenas served as head of the aerodynamics group on the P-61 project at Northrop. Mr. Rust is a noted aviation writer and editor of the Aero Album magazine.

"We expect to have a fairly large turn out for the program,"

KNOTTS OFFERS DISCOUNT RATES

Northrop employees, through arrangements made by their NRC, may enjoy discount rates at Knott's Berry Farm, Buena Park.

Northrop personnel are eligible for membership in the Prospector's Club. Club members may buy seven-ride or attraction books at \$3 for adults and \$2 for children 11 years and under for \$2 and \$2.25, respectively, below regular prices. Membership is free through Personnel Activities outlets.

Rides and Riders

Rides Offered
8 a.m. — 4:42 p.m.

Magnolia & Garfield, Huntington Bch./Fountain Valley. A. N. Bell, Aircraft ext. 1829, 714-968-1539.

Rentals Offered

Cabin, Moonridge, Big Bear Lake, 3-bdrm., 2 baths, f/place, completely furn., family only, \$125 wk., \$50 w/end. 213-326-7232. G

House Car, self-contained, sleeps 6, \$175 wk. 213-286-7346. G

Child Care

Child Care Offered, before & after school or day care, across from Smith School, Hawthorne. 213-675-2892. I

Lost

Cuff Link, gold sculptured, on Jan. 14 or 15, Engineering Science Center, NCL or cafeteria. Box 302. J

Personals

I wish to express my sincere appreciation to all my friends for making my retirement party such a warm & wonderful occasion. GEORGE E. ZBANEK. L

We wish to thank Dave's friends & co-workers for the lovely flowers, cards & attendance at the passing of our beloved husband & father. THE DAVID R. KRIEGHOFF FAMILY. L

My sincere thoughts & thankfulness to my many friends in the Weld Shop for the wonderful retirement party given me in my honor. JOHN KOMMERS. L

I would like to express my appreciation to all my Northrop friends who made my retirement party such an enjoyable event & for the gifts received. DON RHEA. L

My sincere thoughts & thankfulness for the wonderful retirement party given in my honor in Orgn. 5502. CHET DONALDSON. L

Ironing, Lawndale, Redondo. 213-371-5075. L

I would like to thank all my friends at Northrop for the flowers, cards & kind expressions of sympathy received following the sudden death of my wife, Dorothy. WARREN COLLINS. L

said Gary Pape, meeting coordinator. "There are a lot of people interested in the P-61, which was one of the most colorful airplanes of World War II."

Mr. Pape, in his capacity as aircraft specialist for the American Aviation Historical Society, has made an exhaustive study of

LION COUNTRY

One of the Southland's newest attractions — Lion Country Safari — is available to Northrop employees and their families at discount rates through special "passports" available through Personnel Activities outlets.

"Passport" holders may buy regular \$5.75 adult admission for \$4 and children's admission, regularly \$3.50, for \$2.50. In addition, Lion Country Tape Tour units, normally rented for \$1, are available without charge to holders.

EDITOR'S NOTEBOOK

Reporting the activities, honors and accomplishments of Northrop sons and daughters is always a pleasure for us. And when the report concerns the very first official Miss Lawndale and involves a young lady who appears to be as busy as she is attractive, then the pleasure is double.



Miss Lawndale for 1971 is Kay Jones, the daughter of Mr. and Mrs. Ralph Jones. Mr. Jones is an Aircraft Division Tool Stores supervisor. A brother, Jack Jones, also is an Aircraft Division employee.

Miss Jones graduates this June from Leuzinger High School and aspires to become an airlines secretary, a job she feels will bring her into contact with interesting people. She garnered the Miss Lawndale in competition with seven others. She is now eligible to enter the Miss California contest enroute to the Miss America contest.

Kay Jones is a brown-haired, blue-eyed beauty of 18, born in Hawthorne. She is captain of her school's drill team, vice president of the pep club, a member of Lams, fine arts, snow and ski clubs, Girls' League and the "Del Aires," a traveling youth choir. She has won honors in speech competition and works at the Del Aire Day Care center in her spare hours.

* * *

On page 2 of this issue of the News is a dramatic photograph of the Apollo 14 astronauts about to splash down in the Pacific following their highly successful lunar exploration. And behind that photograph is a story that tells something of the marvels of communication in our world today.

Ron McGaffin, Aircraft Division photographer, snapped the photograph. But he wasn't anywhere near the spot. Instead, he was seated comfortably in his home in Los Angeles. Mr. McGaffin used a 4x5 Linhof camera aimed at his television set to record the dramatic event, viewed by millions via on-the-spot television coverage. For camera buffs, his camera was set at F 5.6 and timed for an exposure of 1/25th of a second.

Give or take a couple of steps along the way, the photograph we are carrying was recorded originally by a helicopter flying over the scene, relayed to a nearby aircraft carrier, then to a satellite in space, on a mainland receiving point, again relayed to a local TV station and then beamed to Mr. McGaffin's home. How's that for an epic journey in itself?

NORTHROP NEWS

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MAKESHIFT SWEEPERS WERE USED TO CLEAN UP WATER IN MANUFACTURING.

Quake Kept Everybody Busy



COFFEE WAS GOOD TO THE VERY LAST DROP.

Photos by
Robert Thornton,
Gil Nunn and
Curly Martin



CEILING WAS LOOSENED IN 747 PLASTICS LAMINATION AREA.

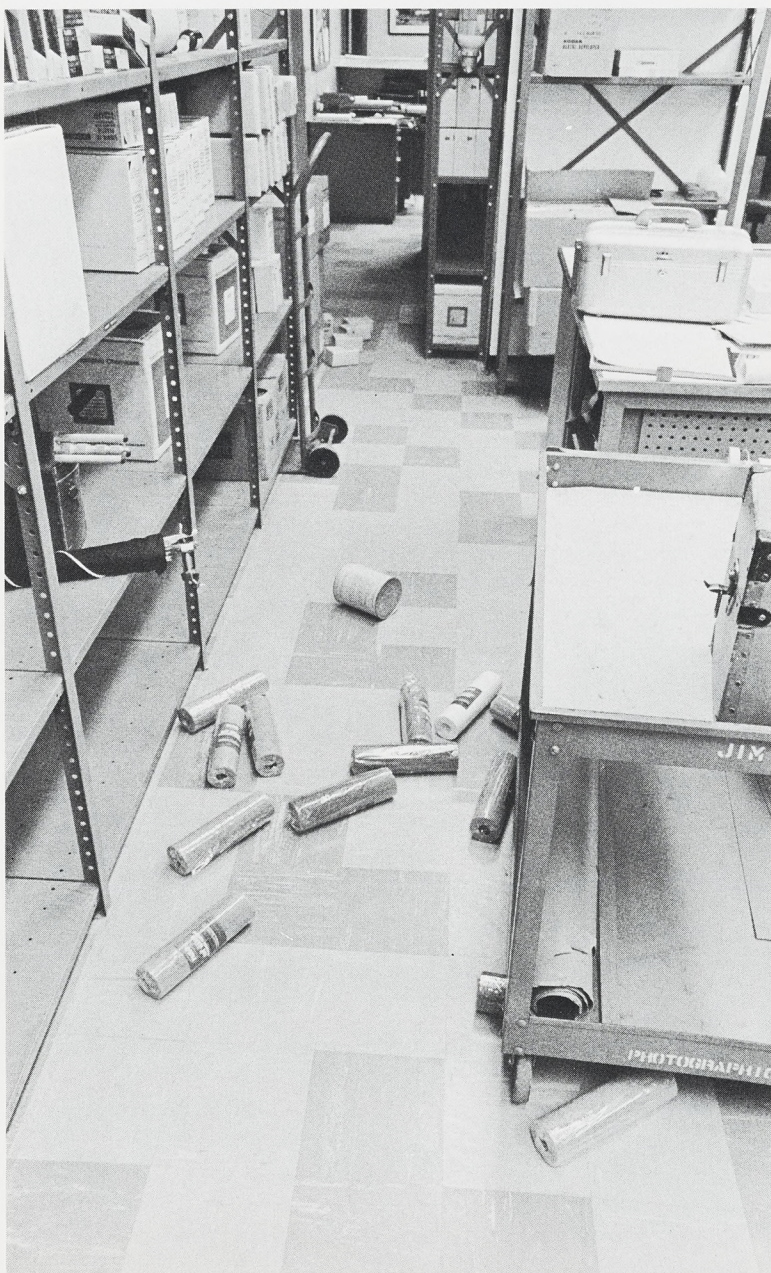


PHOTO EQUIPMENT TUMBLED DOWN FROM SHELVES.



PICTURES WERE ASKEW IN OFFICE OF GENERAL MANAGER WELKO GASICH.



FRANK TIPTON, TANET PALMER HAD SOME STRAIGHTENING UP TO DO.

VENTURA WINS PRAISE ON APOLLO 14 SUCCESS

Ventura Division personnel who have contributed to the success of the Apollo Program through the design, test and manufacture of the Apollo Earth Landing System have been praised for their efforts in the success of Apollo 14.

In a teletyped message to Division General Manager Welko E. Gasich, North American Rockwell Corporation's G. W. Jeffs, vice president and program manager at NAR's Space Division in Downey, stated:

"Your firm and your personnel of the Apollo team have made substantial contribution to the success of this difficult mission and can take pride in their productive efforts. They are to be highly commended for performing an outstanding job."

He added, "Looking forward to increasingly difficult space mission challenges, it is important that each member of the Apollo team, from manager to worker, maintain the highest possible standard of performance. I urge you to convey this message to your people, emphasizing that we are depending upon their dedication . . ."

Ventura is a subcontractor to NAR in the Apollo Program.

Main, Mildon Get More Than \$100 for Cost-Cutting Ideas

Thirteen Ventura personnel shared \$395 in bonus awards in February as they came up with ideas to save time, money and materials in the division's Suggestion Awards Program.

Receiving the largest amount was Jack L. Mildon of the Production Test unit. Mr. Mildon had three suggestions covering improved productivity, new equipment to increase efficiency and safety for awards of \$52, \$51 and \$10, respectively.



Mr. Mildon



Mr. Main

Doug Main, of 747 Subassembly, suggested a better way to locate and drill pilot holes in 747 fixtures. His idea saves more than \$1,000 and he was awarded a check for \$108.

B. E. Smith, second shift foreman in the Machine Shop, received a \$29 award and Frances Rush earned \$26 for another cost-cutting idea. John Wade got \$23 for his suggestion.

Del Prather was awarded \$18 for his money-saving idea as L. E. Keener and N. H. Stohlman received \$12 apiece for a jointly developed method of oiling a spot weld machine. Megs Ruggiero also earned \$12 for a suggestion.

Receiving \$10 each for their cost-cutters were Everett L. Snook, Jack Landis (twice), Alan Gale, Monty Cable and Duane Johnson.

EQUAL OPPORTUNITIES ASSURED FOR ALL IN DIVISION PROGRAM

The company's Affirmative Action Plan and how it works under the Northrop Equal Employment Opportunities Program at the Ventura Division were discussed by R. J. (Dave) Davidson at a recent Management Council meeting.

Mr. Davidson, Corporate EEO administrator, outlined the manager's responsibility in providing what the customer (the federal government) requires of Northrop and its EEO efforts.

He showed several charts outlining EEO programs and action in various aerospace firms and

Northrop's performance in EEO.

John Evans, vice president of Production Operations, is chairman of the Welko Gasich-appointed Management Committee for Affirmative Action.

Al Campbell of the Personnel office is Ventura's Affirmative Action administrator. He oversees the day-to-day implementation of the EEO program.

Others on the Management Committee are Walt Sternadel, vice president of Finance; Don Warner, vice president of Engineering; and Wes Steyer, manager, Support Operations.



SPELLING OUT EQUAL OPPORTUNITY GOALS
Corporate EEO Administrator Dave Davidson addressing Management Council.

NORTHROP NEWS

VENTURA DIVISION

Northrop Corporation, Los Angeles, California

Vol. 29, No. 4

March 3, 1971



PRAISING PERSONNEL ON MQM MILESTONE
General Manager Welko Gasich lauded target team in ceremony marking 1,000th MQM.

WITH 1,000TH MQM

Target Personnel Mark Milestone

MQM-74A aerial target with Navy serial number 16314 looks like any other Ventura-built MQM. But it is different in the eyes of Venturans. They celebrated that difference Feb. 16.

"This is the 1,000th MQM-74A to come off our production line since the initial production delivery in March of 1968," Division General Manager Welko E. Gasich told more than 200 personnel assembled for ceremonies on the MQM line.

Mr. Gasich traced the bird's production history — "we had problems with the first 217 targets" — through the current period where the MQM-74A "is a major program for the division."

Kudos For All

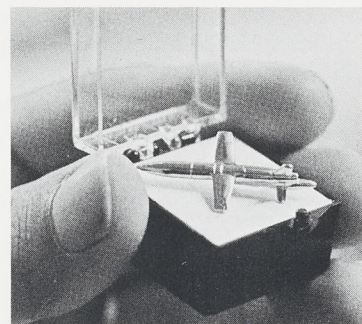
He offered his "personal thanks on behalf of all the division officers" to MQM personnel and a "well done" in the U.S. Navy tradition. The Navy is Ventura's prime MQM-74A customer.

"The target is used by the Navy at Pt. Mugu, San Diego, Norfolk, Va., Okinawa and Hawaii," Ben Collins told the group. He is aeronautical systems program manager.

Mr. Collins described the target's uses against anti-aircraft

guns and six missile systems. "It has a real growth potential in surface-to-air and air-to-air missiles," he said.

"The over-all picture is good," he went on, foreseeing a "long and healthy life" for the target



1,000th MQM MEMENTO

through the next 10 years. He said several nations are now considering the target for their anti-aircraft training programs.

"I sincerely congratulate all of you," Mr. Collins added. "You can all be proud of this program."

Expressing similar feelings was John Evans, vice president of Production Operations.

Each of the 275 people directly connected to the program received a memento of the event—a silver pin in the shape of an MQM.

"Wear these proudly," Mr. Evans said. "This is an excellent product and an equally fine performance on your part," he said. "A continued dedicated effort will lead us to more success."

Bross, Mertus, Smith Notch Two Decades With Northrop

Eight Ventura Division men received service pins in February representing combined Northrop service of 130 years for an average of better than 16 years per man.

USAF HONORS CRAFTSMANSHIP

Ventura Division personnel engaged in the production of parts and components for Northrop F-5 and T-38 aircraft have earned added recognition from the United States Air Force.

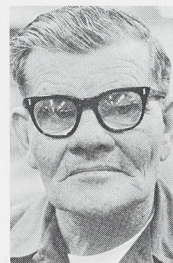
The Air Force Sustained Craftsmanship Performance Award, symbolic of the highest possible achievement in individual craftsmanship, has been presented to Northrop. A year ago Northrop earned the USAF Craftsmanship Award for similar individual performance.

"In recognition of continued craftsmanship performance and achievements beyond the first Craftsmanship Award level," read the notification of the award sent to Northrop President Thomas V. Jones by General George S. Brown, commander, USAF Systems Command.

At the top of the list are three 20-year men. John Bross, Quality Control; Andy Mertus, Machine Shop; and M. D. (Doug) Smith, Raw Stock, joined the division's predecessor, Radioplane, two decades ago and have never left.

Four men earned 15-year pins. They were Carey Buhler, Recovery Systems Project office; Mike Antenucci, a Production Control supervisor; Don Severs, Material Control; and Frank Wilson, Field Services.

Juan Wilson, sewing machine mechanic for the Paralab, was a 10-year pin recipient for February.



Mr. Smith



Mr. Mertus



Mr. Bross

Northrop Wife Gets Police Post

Mrs. Marguerite P. Justice, wife of Northrop Data Processing's William H. Justice, Jr., is the newest member of the Los Angeles City Board of Police Commissioners.

Mrs. Justice was appointed to the commission last month by Mayor Sam Yorty.

In nominating her for the position, Mayor Yorty said, "We are indeed fortunate to have another devoted and outstanding citizen from the black community to serve on the Police Commission."

Mrs. Justice is the first black woman in the United States to serve in this role and the second woman in Los Angeles to hold this position.

In an interview with the Los Angeles Times, Mrs. Justice said she plans to use the systems approach in handling any problems she is faced with as commissioner.

"My husband has taught me a great deal about the systems approach to problem solving and I plan to use this in evaluating the information I gather."

Mrs. Justice, a native of New Orleans, has participated in numerous civic and community activities over the past 17 years.

They include subcommittee chairman, relocation committee, Hoover Urban Renewal Advisory committee; second vice president, West Side Property Owners Association; advisory committee, Southwest Division, Police Department; advisory committee, Manual Arts High School; advisory committee, District Attorney's Youth Council, and superintendent, Youth Division, St. Mark's United Methodist Church.

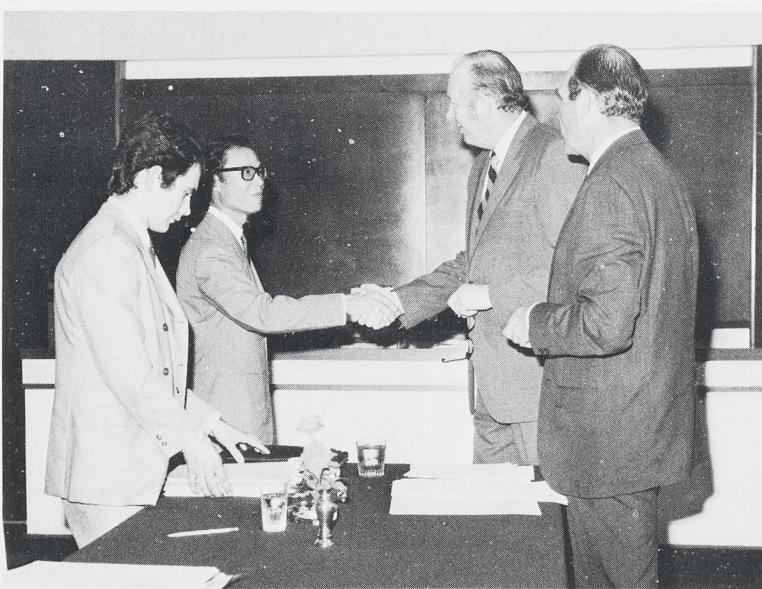


MR. AND MRS. WILLIAM H. JUSTICE, JR.
She is newest member of Los Angeles City Board of Police Commissioners.

Know Your Industry

The increase in Federal spending during the past decade is commonly attributed to the Defense establishment. The fact is that Defense spending over the last 10 years has declined from 48 per cent to about 37 per cent of the Federal budget, the lowest level since 1950. At the same time, Federal spending for such major domestic programs as education, manpower, health, income security, housing, community development, and crime prevention has grown from about 25 per cent to nearly 40 per cent of the budget.

The aerospace companies that manufacture airplanes and the airline companies that fly them constantly are striving for more "productivity," which means more passengers carried faster by fewer aircraft for the same or less cost. Why is productivity essential? For example, a recent study of the three major airports in the San Francisco Bay area predicts that the 20 million air passengers expected to use the airports this year will grow to 83 million in 1985. This will require 1,000,000 aircraft movements in and out of the three airports in 1985—or one landing or takeoff for each airport every minute and a half if the traffic is spread evenly over the 24 hours of each day and all three airports—San Francisco, Oakland, San Jose—are used equally.



FINALIZING NEW THAI COMPANY
Lawyer Chris King, left, Thai board member Peera T. Suwan, Northrop's Glenn R. Lord and Hallicrafters President Harrison Van Aken.

New Thai Company Will Service Radio Equipment

Northrop's multi-national approach to diversification was highlighted last month by the formation of Thai Communications Co., Ltd., in Bangkok, Thailand. The company will repair, maintain and manufacture two-way radio equipment as well as design and install communications systems for Thailand and eventually adjoining countries.

"This represents Northrop's initiative in forming a company overseas distinct from buying ownership into an existing company," explained Glenn Lord, Corporate vice president of Marketing. Northrop owns 45 per cent of the stock and seven Thai businessmen hold the remaining 55 per cent.

Formation of the firm climaxed an extensive study of the country,

the people, the needs and Northrop's ability to meet those needs by a Northrop team, noted Bruce MacDonald. He and Mr. Lord led the team which studied the country and created the company.

Included in their efforts was a 45-minute audience with His Highness Phumiphol Aduldet, King of Thailand. Mr. Lord, Hallicrafters Co. President Harrison Van Aken, Northrop Corporate executive in Thailand Jack Bailhe and two of the involved Thai nationals presented a radio to the king and informed him of their plans for the company.

Thai Communications Company's initial work will be with Hallicrafters radio equipment owned by the Thai military and police. There are approximately 20,000 two-way radios in Thailand.

Headquartered in the capital city of Bangkok, Thai Communications Co., Ltd., "will start small and gradually build up its capability," Mr. Lord said.

"The company is at a special advantage because of its affiliation with Hallicrafters," Mr. Lord added. Hallicrafters, a major producer of radio equipment, is a subsidiary of Northrop.

Northrop Rewards Youth for Finding Shoe of Lost Girl

Martina Peterson, 11-year-old daughter of a Northrop engineer, has been found dead in the San Bernardino Mountains. The girl has been the object of a search since she disappeared while on an outing with her family on Dec. 29.

A lost shoe, found by Gilbert C. Cenicerio, 17-year-old son of the fire chief of Lake Arrowhead Fire Department, provided the clue that led searchers from the Sheriff's department to the body.

The young man, a member of Search and Rescue Post 99, Crest Forest Fire Department, received the \$1,000 reward posted by Northrop Corporation for information on the lost child's whereabouts.

Personnel of Northrop extend their deepest sympathy to Martina's bereaved family.

Martina's father, Joseph A. Peterson, is an engineering specialist with Northrop's Electro-Mechanical Division in Anaheim.

SPECIAL REPORT

SST Will Move More People in Less Time With Fewer Aircraft

Before the end of March the United States Congress must decide whether additional funds will be made available to continue development of the United States Supersonic Transport (SST).

Northrop Corporation has clearly indicated its interest in seeing the developmental program continue. Northrop employees who share this view have been asked to express their opinions to their elected representatives in Washington, action that must be

taken soon to be effective. Pre-printed cards are available at Personnel Activities to make these contacts easier.

In a special Northrop News report presented Feb. 17 some of the basic issues raised against the SST program were presented, along with relevant answers concerning these issues. The following special report touches on additional issues, along with answers provided by knowledgeable sources.

The Issue. . . Who really wants a supersonic transport?

The Answer. . . Obviously the world's need for the SST exists NOW. Two commercial prototypes are flying now—the British/French Concorde and the Russian TU-144. The real question before the nation—and Congress—is whether or not the United States, in competition with other nations, will build prototype supersonic aircraft to determine the feasibility of such an advance in transportation.

The Issue. . . Is there a market for the U.S. SST?

The Answer. . . Yes, definitely. Realistic forecasts indicate 540 or more U.S. SSTs can be sold, about 55 per cent of them to foreign airlines.

The Issue. . . If the program is so promising, why not let private industry finance the program? Why should the government be involved?

The Answer. . . Development of two SST prototype aircraft will cost over \$1.7 billion, including substantial contributions by private industry. No private firm has the financial reserves for such a commitment. The government's share is about \$1.3 billion; Boeing has committed \$215 million; General Electric, \$94 million; subcontractors, including Northrop, about \$25 million; and airlines, about \$90 million. The SST program is a joint venture with the government, industry and the airlines sharing the risks and rewards, if the program is successful.

The Issue. . . The government is giving a subsidy with taxpayers' money to support what will be a commercial venture.

The Answer. . . Money being provided is not a subsidy, but more like a long-term loan. The government isn't giving anyone that money; it's investing it. It will get the full principal amount back by the sale of the 300th SST. When 500 SSTs are sold, the government will have received an additional return of more than \$1 billion on its investment. For each sale beyond this point the government will receive royalties.

The Issue. . . We should spend this money elsewhere, perhaps on pressing social needs.

The Answer. . . The SST program can be a plus factor in providing jobs and a substantial tax base to support other national needs—health, housing, education, environment, parks and welfare. Calculations show a full production program for the SST would mean as much as \$6.6 billion in state and federal taxes in addition to the \$1 billion in royalties for use in these programs and others.

The Issue. . . What really would a going SST program mean in terms of jobs?

The Answer. . . The prototype development program will provide direct employment for about 20,000 persons at peak activity, about half of these persons will be working for subcontractors and suppliers across the nation. The production program for the SST will employ about 50,000 persons at its peak. Considering the secondary—or "multiplier"—effects, the SST program will provide employment at peaks for about 150,000 persons. One-third of all those jobs will be in California.

The Issue. . . Proceeding with the project would involve only national considerations.

The Answer. . . Far from it. In 1970 aerospace sales to foreign nations amounted to \$3,466 million; \$1,578 million of that amount was for transport aircraft. Without these sales the United States would have had a critical negative balance of trade. Should the U.S. fail to build SSTs and market them overseas as well as at home, and American airlines were forced to buy foreign-built SSTs to compete for passengers, it is estimated the total damage to the balance of trade by 1990 would be \$22 billion.

The Issue. . . The SST will be a frill for the jet-set, a veritable toy in the playpen of the wealthy.

The Answer. . . The SST will be the workhorse of the airline fleets. Because of its speed, it will do three times the work of subsonic jets of equal capacity. The fact that it will cut four and a quarter hours from today's transatlantic travel time will appeal to any traveler—business or pleasure. Hawaii will be less than two hours from Los Angeles. And SST fares will be the same as those of subsonic jets.

The Issue. . . Compared with new wide-body jets, the SST represents a step backward in passenger comfort.

The Answer. . . The SST passenger will enjoy the same comfort level offered on the latest subsonic jets; in some cases he will have more space. Considerably shortened flight time at virtually turbulence-free high altitudes, easy transition from takeoff and landing speeds to cruise speeds and less congestion at departure and arrival will be added advantages of the SST.

The Issue. . . There is no real need to travel at supersonic speeds.

The Answer. . . The simple fact is that the SST will be productive in moving people during a given time period with fewer aircraft. It represents a way to hold down the cost of air transportation and to relieve congestion in the airways.

Test Programs Study Vehicle Smog Emissions



THE SMOG EMISSION TESTING FACILITY IS LOCATED IN PLANT TWO AT ELECTRO-MECHANICAL DIVISION.



GETTING READY
Jerry Goodrich attaches exhaust hose to sample emissions.



RUNNING THE TEST
Ron Morris, background, makes systems analysis of a Pontiac.



DYNAMOMETER TEST
One of the tests involves use of a dynamometer so that vehicles can be tested under actual driving conditions.

Two programs to aid in reduction of air pollution are being conducted at the Electro-Mechanical Division's Anaheim facility. One of the programs is for the California Air Resources Board. The other is a Federal program for the U.S. Department of Health, Education and Welfare.

The state program for the California Air Resources Board is a two-part study to determine the value of periodic inspections of automobile exhaust emissions as a means of reducing air pollution in the state.

Cross-section of Cars

Jim Norman, program manager, explained the program: "The main test phase of the program involves testing of 1,200 cars chosen from the greater Anaheim area to represent a proportional cross-section of cars throughout the state. These cars are selected at random by computer.

"Four different inspection plans are being evaluated to determine the most effective one to reduce exhaust emissions of hydrocarbons (unburned gasoline), carbon monoxide, and oxides of nitrogen. The actual testing is being done by Olson Laboratories, Inc., a recognized expert in the field of vehicle emission measurement," Mr. Norman added.

Cars Serviced

A learning phase for the pro-

gram was implemented to finalize test procedures and techniques. A total of 120 Northrop employee-owned cars were tested and serviced as required. Many cars in the initial phase received tune-ups and similar maintenance at no cost to the owner, as will occur during the main test phase.

John Gunderson, project engineer, described the testing program in this way: "The four inspection plans under evaluation are the current California certificate of compliance procedures, an emission test at engine idle, a key-mode test using a dynamometer which allows the rear wheels to rotate and simulate normal driving condition to test emissions at idle speed, low cruise and high cruise speeds, and a complete engine exhaust analysis which requires automotive diagnosticians."

Hot Test

Each car is first subjected to a California standardized seven-mode hot test which gives a comprehensive emission profile of a car's exhaust pollutants. This test also provides a common basis for evaluating each of the four tests under evaluation.

After the seven-mode test, a test car is tested by one of the pre-assigned test methods. If the car fails its test, it is sent for service which may include adjustments in timing, carburetor, plugs,

valves, or complete tune-ups. After service, the test car is subjected to a second seven-mode test and the new emission levels recorded. Data on emission reduction for all tests will then be analyzed to determine which test gives the greater emission reduction for a given cost.

Federal Program

The second emission program, for the U.S. Department of Health, Education and Welfare, is being conducted by Olson Laboratories, Inc. Gary Wilson, western regional manager for Olson, said only 1970 and 1971 cars are being tested to determine if exhaust controls on new cars are performing their designed job.

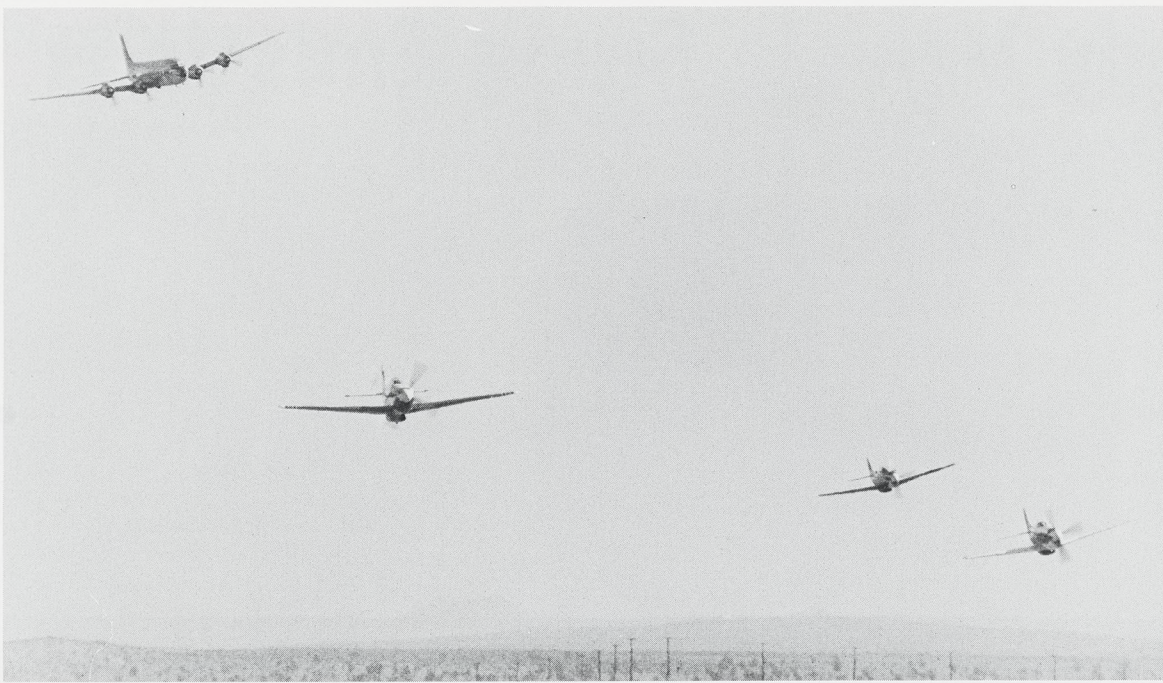
The Federal tests are conducted in a similar manner as the state tests. Both programs will continue to run concurrently at the Northrop-Olson Facility at Anaheim. Equipment and calibration gases used in the tests were manufactured by Olson Laboratories, Inc.

DOLPHIN CLUB MEANS SAVINGS

By obtaining membership in the Dolphin Club without charge at all Northrop ticket outlets, personnel may enjoy savings of 15 per cent on attractions at San Diego's Sea World.



DISCUSSING THE PROGRAM
Left to right, Gary Wilson, John Gunderson, Don Marouka and Larry Moore.



AROUND THE PYLONS
Three P-51 Mustangs and DC-7 compete for advantage.

DIRECTS BIG AIR RACE

Adam Robbins Sees Dream Come True

The first annual California 1000 Air Race was a dream come true for Adam Robbins, engineer in the Product Support subsection, Electronics Division.

Mr. Robbins served as race director for the history-making

event, which was the longest and biggest air race ever held.

More than 20,000 spectators witnessed the inaugural race last November at Mojave Airport. Sherman Cooper, flying a Hawker Sea Fury, captured first place with an average speed of 347 miles per hour.

"The California 1000 adds a new dimension to the sport of air racing," Mr. Robbins said. "It is the first race designed specifically to accommodate the big racing airplanes."

Changing Scene

"In the past big planes had very few opportunities to compete against one another. And when they did, the race lasted only 150 miles or so. The whole thing was over in 15 minutes."

"With the Cal 1000," he continued, "spectators are able to spend an entire afternoon watching some of the biggest names in racing wing their way around a closed pylon course."

"The excitement of seeing a DC-7, B-26 and P-38 banking into a pylon all abreast is impossible to explain. You have to see it to believe it."

A total of 20 airplanes qualified for the big air race, including speedsters like P-51D and H Mustangs, F4U Corsairs and F8F Bearcats.

Mr. Robbins has been an avid aviation buff for the past 11 years. And although he has never flown in an air race himself, he believes that the sport is a "uniquely liberating experience."

He holds a commercial pilot's license with heavy multi-engine rating and is the producer of a successful film about Darryl Greenamyer, who holds the world speed record for a single engine propeller airplane.

Mr. Robbins says he is looking forward to this year's race in November with much enthusiasm.

"After all," he smiled, "air racing is alive and well in California."



THE WINNER
Sherman Cooper in his Hawker Sea Fury.

Catchy Slogan Could Win Big Prize in Contest

How's your repertoire of limricks, slogans or meaningful phrases?

If it's in good working order, you may be able to lend a hand to the Northrop Credit Union and win a handsome prize in the process.

Officers of the Credit Union are seeking a special slogan, one that will be catchy enough to attract interest yet applicable to the many services and conveniences it offers all Northrop employees.

So beginning today and continuing through March 31 the Credit Union is conducting a slogan contest. All Northrop employees except appointed and elected officers, Credit Union staff and families, are eligible to enter, as many times as they like.

The winning slogan, selected by an impartial panel of judges, will win for its author a handsome digital clock/AM-FM radio set.

Each entry in the contest must be on a separate sheet of paper that includes the slogan, the author's name, division affiliation, Northrop man number, in-plant mailing address and in-plant telephone number. Send all entries to: Northrop Credit Union, 1292/5 at Hawthorne.

Sam Orr Rides Out Quake While Driving to Work

Most of those caught in the recent earthquake saw only what went on in their locality, but Sam Orr — Aircraft Division photographer — got a complete view of the damage for he had to drive across the worst hit areas twice.

Sam, who lives in Lancaster and commutes to Hawthorne, was between Palmdale and the San Fernando Valley when the first tremors hit.

"I had been in earthquakes while driving before and had never known it until later," Sam recalled. "So when the car began to vibrate badly, I thought something was wrong with the left rear wheel. Then it got worse and I thought I was also losing the right front. I stopped and got out, still thinking my car was at fault. Then the car door slammed behind me and the shaking ground almost knocked me off my feet."

Starting up again, he went on, not realizing the extent of the damage until he started to see landslides and rocks in the road.

As he turned into the Golden State Freeway, he could see smoke hanging over the San Fernando Valley and the wreckage of burned

buildings and house trailers.

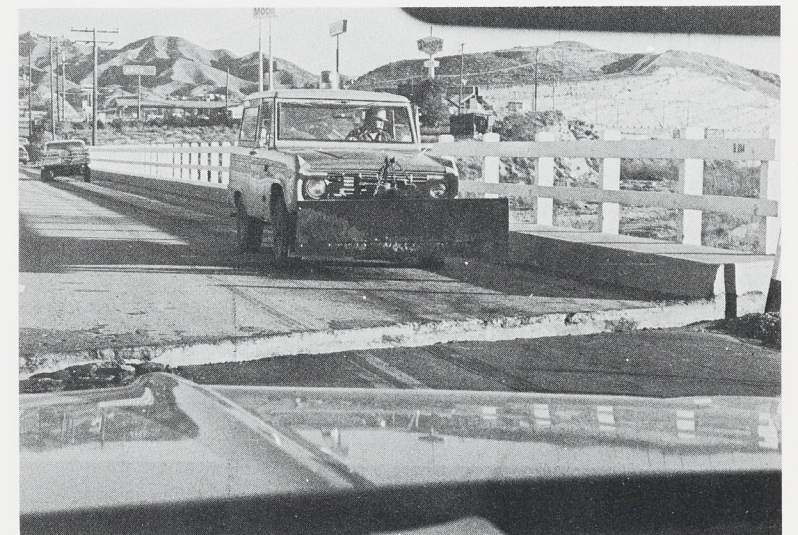
He still thought he could make it to Northrop, but the broken overpass on the Golden State Freeway backed up traffic solidly for three miles. The surface streets were also jammed and in many cases completely blocked. He was ordered by the Highway Patrol to go back.

Sam started home and found the Antelope Valley Freeway impassable. He was routed up through Sand Canyon, but was soon stopped at a bridge that was now standing one foot higher than the road. It was blocked by guards as unsafe for travel.

He was trapped, unable to go forward and unable to go back. But photographers are ingenious people. He waved his camera in one hand and his photographer's pass in the other, assuring the guard that he had to get through for an emergency.

"If you're crazy enough to risk your neck on that buckled bridge, go on," the guard said.

By angling his car in and taking one wheel at a time he managed to climb up the buckled end and made it safely home.



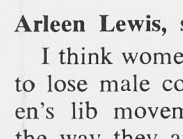
SAM ORR FACED THIS TRAFFIC OBSTACLE
Separation between bridge and road was about one foot high.

WE ASKED THEM—Will Women's Lib Cause Women to Lose the Male Courtesies?



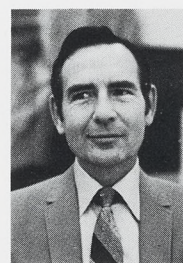
Douglas, lead electronics assembler, Ventura:

It's entirely up to the individual. If you conduct yourself in such a way that you should be treated courteously then it's a matter of one human being to another, rather than male to female or vice versa.



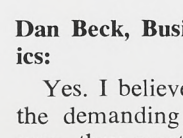
Arleen Lewis, secretary, Aircraft:

I think women's liberation should cause women to lose male courtesies. I think the whole women's lib movement is stupid. Just leave things the way they are. A man comes first.



Howard Huisken, Labor Standards, Electro-Mechanical:

I don't think it will change anything very much. People are born what they are, and if they are courteous before, they will be courteous after. I'll still open the door for a lady.



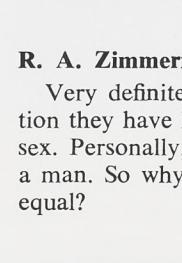
Dan Beck, Business Systems specialist, Electronics:

Yes. I believe the women that are doing all of the demanding will lose these courtesies. However, they must remember that it is their choice.



Raul Romo, honeycomb fabricator, Ventura:

They've already lost a lot of them. Maybe it's time for the women to treat the men with more courtesy.



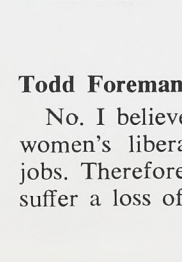
R. A. Zimmerman, design specialist, Aircraft:

Very definitely yes. Women will lose the position they have held by being the so-called weaker sex. Personally, I wouldn't hold a door open for a man. So why do it for a woman if she is your equal?



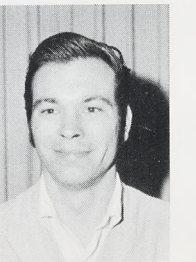
Lois Thrailkill, accounting clerk, Electro-Mechanical:

I hope not. I want women to have a certain amount of liberation of course, but not to the extent of losing all feminine prerogatives.



Todd Foreman, machinist, Electronics:

No. I believe the more accepted movement in women's liberation is in equal opportunity in jobs. Therefore, the majority of women will not suffer a loss of the normal male considerations.



Classified

Classified ad service is provided free of charge to all Northrop personnel. Ads for agencies, commercial enterprises and private businesses are not accepted. The Northrop News reserves the right to edit or omit ads. Obtain ad form C67 from organization clerk and mail ad to Northrop News, 170, zone 62. Ads are limited to one item and one ad per person each issue. Deadline is noon Wednesday, one week before publication.

Automobiles For Sale

- **Rambler**, 1963, V-8, p/s, auto., r/h, new tires & brakes, \$300. 213-378-1749. A
- **Ford**, 1969 LTD, 2-dr. h/top, 16,000 mi., a/c, p/s, p/b, AM-FM stereo, \$2,195. 213-835-0426. A
- **Pickup**, 1963 Chev., ¾-ton, w/10' Alaskan camper, rebilt. eng., new clutch, brakes, radiator, \$2,195. 213-329-4402. A
- **Thunderbird**, 1965, full power, a/c, \$800. 213-323-3702. A
- **Chevelle Malibu**, 1967, 2-dr., auto., p/s, 41,000 mi., \$1,300. 213-372-7320. A
- **Malibu**, Chevelle, 1967, 327 hi performance, 4 on floor w/Hurst shifter, S/W gages, tach, many extras, \$1,500. 213-675-9500. A
- **Datsun**, 1964 1500 convt., r/h, 4-spd., tonneau cover, \$625. 213-439-6432. A
- **Sand Buggy**, Ford powered, roll bars, jump seat, tow bar, \$500. 213-534-3410. A
- **Truck**, 1969 Datsun, 15,600 mi., chrome rims, \$1,400. 213-376-7516. A
- **Mustang**, 1966 h/top, 289 V-8, 4-bbl., 4-spd. trans., wide wheels, \$1,070. 213-645-7972. A
- **Triumph**, 1965 Spitfire Mk II, \$700. 213-644-6629. A
- **Chevrolet**, 1965 Impala, 2-dr., V-8, auto., p/s, p/w, p/b, a/c, under 41,000 mi., \$950. 213-676-5962. A
- **Ford**, 1970 LTD, 2-dr. h/top, 16,000 mi., p/s, p/b, r/h, 351 eng., \$2,650. 213-377-4164. A
- **Mustang**, 1966, V-8, 289, p/b, p/s, r/h, 15,000 mi., \$1,200. 213-638-7993. A
- **Jaguar**, 1954 Roadster XK120, \$400. 213-322-2440. A
- **Dodge**, 1970 Challenger, V-8, air, disk brakes, Western Sports Special, landau top, 12,000 mi., \$3,000. 213-541-3000. A
- **Chevy II**, Super Sport, V-8 eng., 2-dr., 45,000 mi., radio, \$800. 213-676-8068. A
- **Ford**, 1967 Mustang Fastback 2+2, only 19,000 mi., \$1,500. 213-644-0683. A
- **Station Wagon**, 1967 Dodge Coronet, 9-pass., fact. a/c, auto. trans., p/s, p/b, lug. rack, \$1,500. 213-835-8549. A
- **Ford**, 1969 LTD, 16,000 mi., every extra, \$2,650. 213-324-6043. A
- **Mustang**, 1965, V-8, 289, p/b, p/s, a/c, 46,000 mi., \$800. 213-329-3593. A
- **Pontiac**, 1966 Bonneville, 98,000 mi., min. bid \$495; Firebird, 1967, 62,000 mi., min. bid \$1,195. Credit Union ext. 1117. A
- **Karmann Ghia**, 1966, new brakes, \$950. 213-373-4756. A
- **Ford**, 1940 Coupe Delux, less eng. & trans., \$150. 714-962-4587. A
- **Model A Roadster**, modified, \$125. 213-537-0438. A
- **Chevrolet**, 1969 Nova, auto. trans., p/s, other extras, \$1,750. 213-541-2710. A
- **Cougar**, 1968, fact. air, auto., p/s, p/b, landau top, 33,000 mi., full warranty, \$2,650. 213-375-7265. A
- **Mustang**, 1969, 2-dr. coupe, a/c, new tires, all power equipment, \$2,300. 213-943-7873. A
- **Station Wagon**, 1962 Ford, rebilt. eng., \$400. 213-325-2292. A
- **Dodge**, 1968 Charger R/T, 440 eng., p/s, p/b, a/c, auto. trans., rally whls., \$1,995. 213-635-1998. A
- **Volkswagen**, 1968, \$1,150. 213-274-8641. A
- **Pickup**, 1969 Datsun, custom lge. shell, w/ boot & cargo door, \$1,500. 805-498-2307. A
- **Chevrolet**, 1965 Malibu, auto. trans., 283 cu. in. eng., 49,000 mi., \$775. 213-320-6539. A
- **Ford**, 1964 Galaxie Fastback, 2-dr., p/s, auto. trans., 289 cu. in. eng., \$500. 213-679-6369. A
- **Station Wagon**, 1963 Buick Special, V-6 eng., r/h, 3-seat, auto. trans., rebilt., \$300. 213-679-4863. A
- **Camaro**, 1968, 4-spd., 228, \$1,900. 714-672-4756. A

Household Items For Sale

- **Dishwasher**, Waste King, \$10. 213-323-8797. B
- **Dryer**, Kenmore elec., 3 cycle, 3 temperature, \$50. 213-675-6029. B
- **Canopy Bed**, white, single, mattress, \$50. 213-860-7424. B
- **Crib**, Babyline, natural finish, \$20. 213-679-6982. B
- **Hospital Bed**, mattress, manual operation, \$70. 213-395-0147. B
- **Sewing Machine**, National rotary elec., standing cabinet, \$25. Box 401. B
- **Dishwasher**, portable, coppertone, 4 yrs. old, Sears, \$65. Box 402. B
- **Samovar**, antique, nickel, alcohol lamp & antique china, \$85, many misc. pcs. 213-474-5726. B
- **Rocker**, swivel, naugahyde, avocado, \$40. 213-325-8342. B

Miscellaneous For Sale

- **Router**, Stanley, & plane kit, 7/8 h.p. motor, never used, \$100. 213-672-5872. C

Miscellaneous For Sale

- **TV**, 21" Hoffman, phono. input, remote control, \$50. 213-379-1049. C
- **Motorcycle**, 1970 Honda CB-175, 5,000 mi., \$395. 213-377-4481. C
- **Shotgun**, H/R single shot, 20 ga., recoil pad, 2 boxes shells, case, \$25. 213-675-1336. C
- **Utility Trailer**, all steel, new paint & finished int., wide whls. & tires, \$275. 213-534-5287. C
- **Guitar**, Gretsch Country Gentleman, elec., w/case, \$395. 213-670-8873. C
- **Carport Carrier**, enclosed, w/lock, \$20. 213-679-1631. C
- **Camera**, Nikomat F.T.N., 50mm, f1:1.4 lens, used less than 1 yr., \$195. 213-375-4760. C
- **Wedding Ring**, ladies, white gold, 3 rolls across of 7 blue white diamonds ea., \$300. 213-758-8980. C
- **Ski Boat**, 14', 70 h.p. Mercury outbd. motor, big whl. trailer, \$495. 213-675-2892. C
- **Sailboat**, 24', fiberglass, w/outbd. & boat bath, \$3,100. 213-374-7928. C
- **TV comb.**, record player, stereo radio, Capeharte, \$150. 213-370-4475. C
- **Surfboard**, 7' Rick, \$25. 213-374-8608. C
- **Trailer Tent**, 8x10 room attach., for Aristocrat Low-Liner, used twice, \$100. 213-324-3066. C
- **Ham Gear**, Swan 120 SSB transceiver, Topaz 12 V. supply for 240 W., Nutronics whip, \$225. 213-534-0950. C
- **Chain Saw**, McCulloch Power Mac 6, auto., used little, \$110. 213-328-8830. C
- **Pups**, small, ¾ toy fox terrier, \$15. 213-374-5133. C
- **Piano**, black Wurlitzer spinet, bench, \$250. 213-323-5746. C
- **House**, 3-bdrm., 27' family rm., btlins, 24x30 hobby shop, unfurn. or furn., cpts., dps., spinet piano, adjacent grade school, walk to El Camino College, \$39,500. 213-329-5459. C
- **Acreage**, 2½ acre parcels near Palmdale Intercontinental Airport, low dn. pymt. & interest, cash discount, \$6,500. 714-871-1373. C
- **Acreage**, 5 acres, Antelope Valley, view, near paved rd., \$400 dn., \$6,000. 213-378-1026. C
- **Playpen**, nylon mesh, \$10. 213-673-2009. C
- **Trolley Hoist**, 1½-ton, geared, \$95. 213-545-6719. C
- **Piano**, Wurlitzer spinet, Early American finish, \$500. 213-377-5322. C
- **Typewriter**, portable, carrying case, full keyboard, \$15. 213-326-5731. C
- **Tuner**, AM-FM multiplex, & stereo amplifier, Heath mod. AA-100 & AJ-41, 70 W., \$50. 213-675-0788. C
- **Camera**, 3-D stereo Realist 35mm, f:3.5, carrying case, flash attach., haze filters, \$75. 805-482-8049. C
- **Trailer**, 1969 Aljo, 21½'x8', self-contained, min. bid \$2,895. Credit Union ext. 1117. C
- **Camper**, 1969, 10' long, sleeps 6, kitchen, stove, refrig., lavatory, hyd. jack & bounce away, \$1,200. 213-752-0723. C
- **Metal Locator**, Goldak, Commander mod. 720, incl. miniature headphone jack, depth range in excess of 5', less than 4 lbs., \$90. 213-371-7958. C
- **Telephone Answering Device**, \$130. 213-377-8211. C
- **Swing Set**, 2 gliders, 2 swings, \$15. 213-377-3806. C
- **Adding Machine**, hand-operated, \$20. 213-830-5284. C
- **Folding Doors**, louvered, stained & varnished, pinewood construction, movable shutters, \$5 ea. 213-821-4180. C
- **Golf Clubs**, Arnold Palmer's professional woods 1, 3, 4, irons 2-9, pw, reg. shaft, D-2 swing wt., \$95. 213-291-6079. C
- **Table**, redwood, benches w/pads, ping pong table & access., \$35. 213-326-3905. C
- **Supercharger**, Shelby-Paxton for Ford 289, complete, \$250. 213-674-5542. C
- **Piano**, baby grand, \$325. 213-256-0544. C
- **Motorcycle**, 1969 Yamaha, 125 cc twin street Scrambler, 1,800 mi., \$350. 213-675-1834. C
- **Golf Clubs**, 1970 Ben Hogan pro model, Apex shaft, reg. 3 woods, 2-9 irons, p/w & s/w, \$125. 213-532-4664. C

Wanted to Buy

- **Fishing Reel**, 6/0 Penn. Senator & revolver, Ruger single action 22 cal. w/6½" bbl. 213-370-7749. D
- **Station Wagon**, Toyota Land Cruiser. 213-645-2711. D
- **Bicycles**, Derailleur, 5 or 10 spd., lightweight, man's 27", ladies' 26". 213-375-4747. D
- **Aquariums**, Metaframe or Pemco, & equipment. 714-528-1919. D
- **Shell Camper** for 1967 El Camino. 213-534-4776. D
- **Water Skis**, small, for 8 yr. old. 213-329-6625. D
- **Sewing Machine**, upholstery-type, walking foot. 213-674-2641. D

Free (To Be Given Away)

- **Dog**, golden retriever, 1 yr. old, to good home, born partially blind, no handicap. 213-865-5589. F

Rentals Offered

- **House**, 2-bdrm., garb. disposal, lge. yard, single gar., acoustic ceilings, hdwd. floors, avail. mid March, 2 children only, \$150. 213-679-2771. G
- **Studio Apt.**, unfurn., 2-bdrm., 1½ bath, all elec., Torrance, \$235 mo. 213-325-1094. G

MAJOR JERAULD GENTRY

Veteran Test Pilot Gets New Assignment

Major Jerauld Gentry, USAF, perhaps the best-known member of the nation's small group of lifting body vehicle test pilots, has been re-assigned to new USAF duties in Thailand.

Maj. Gentry marked his pending departure from Edwards AFB with a final lifting body test flight aboard the Northrop-built M2-F3, (the M2-F3 was redesigned, renovated and redesignated the M2-F3).

Replacing Maj. Gentry in the NASA-USAF lifting body research effort is Maj. Cecil Powell. A veteran test pilot, Maj. Powell was a major test pilot in the USAF flight test program of the Northrop RF-5, a reconnaissance version of the Northrop F-5 tactical fighter.

Maj. Gentry made his first lifting body flight in the Northrop-built M2-F2 vehicle in October 1966. Subsequently, he flew four other M2-F2 flights. In addition, he made nine flights in the Northrop-built HL-10, including that vehicle's first rocket-powered flight in October 1968. He has been engaged in flight test of the USAF X-24A, the third lifting body vehicle in the joint program.

With his final test flight aboard the M2-F3, Maj. Gentry became the first man to fly all of the lifting body test vehicles, the M2-F1, M2-F2, M2-F3, HL-10, and X-24.

WU PICKED

K. C. Wu, engineering specialist in the Aircraft Division's Materials Research organization, has been invited to serve as a member of the Reactive and Refractory Metals committee, Welding Research Council of the Engineering Foundation.

ICE CAPADES

NRC has reserved a block of 500 "best in the house" seats for the 5 p.m. April 25 performance of Ice Capades to be presented at the Los Angeles Sports Arena.

Regular \$5 tickets are being offered through Personnel Activities outlets for just \$3.50 each.

Rides and Riders

Rides Wanted

7 a.m. — 3:42 p.m.

Prairie & 116th St., Hawthorne. Robert H. Carey, Alameda ext. 2133, 213-676-7712.

Rentals Offered

Vacation Cabins, 1 & 2 bdrms., stream, patio, f/place, \$30-40 w/end, \$70-\$90 wk. 213-868-8040. G

Cabin, Big Bear City, 1 yr. old, 2-bdrm., 1 bath, \$90 wk., \$45 w/end. 213-320-6486. G

Cabins, Lake Gregory & Crestline, sleep 6, \$25 w/end, \$60 wk. 213-391-2040. G

Cabin, Moonridge, Big Bear Lake, 3-bdrm., 2 baths, f/place, completely furn., family only, \$125 wk., \$50 w/end. 213-326-7232. G

House, Bass Lake, \$150 wk., \$45 w/end. 213-374-3702. G

Personals

On behalf of the family, we wish to express our gratitude for your kindness during the illness & death of our beloved father & husband. MRS. EDW. FIALKOWSKI & CHILDREN. L

I wish to express my heartfelt gratitude for the flowers, cards & sympathy expressed by my friends & co-workers during the recent illness & death of my husband William "Bud" Irwin. JOANNE IRWIN. L

A sincere thank you to each friend at Northrop for the flowers & condolences at the passing away of my mother. KEN SIEDELMAN. L

I wish to thank my many co-workers & friends for their thoughtfulness & kindness expressed at my retirement party. It was a never to be forgotten event. VERNE G. VANDERLILLE. L

I wish to express my sincere thanks to all of my friends & co-workers for the wonderful retirement party given in my honor. I will always have fond memories of working at Northrop. R. F. "RAY" VAN ORDEN. L

In 1969 Maj. Gentry was named recipient of the Harmon International Aviation Trophy for his research in the HL-10, a program that also led to his selection to receive the Kincheloe Award as the outstanding experimental test pilot of the year 1969. In 1970 Maj. Gentry received the

American Institute of Aeronautics and Astronautics Ocatave Chantave Award.

Maj. Gentry also has made test flights aboard Northrop F-5 aircraft during his long career.

In his new assignment, Maj. Gentry will report to Ubon Airfield, Thailand.



LIFTING BODY VEHICLE TEST PILOTS

From left, Maj. Jerauld Gentry, Maj. Cecil Powell, John Manke, Bill Dana.

EDITOR'S NOTEBOOK

Although many Northrop personnel have now had a chance to ride the big Boeing 747, few have had the opportunity to slide down the emergency exit chutes. Art Jackson of the Harpoon Proposal Team had such an opportunity.

On a December flight from Los Angeles to Washington, D.C., the 747 had to land at Albuquerque, N.M., because of a fire warning light in the aft baggage compartment. "Since no 747's are presently scheduled at Albuquerque they didn't have ramps tall enough to reach the doors," Mr. Jackson explained.

"So down the chutes we went." He said it was 20-25 feet down the nylon chutes and all passengers debarked without a hitch. They later took a 707 to Washington because the 747 needed minor work (there was no fire) "and besides, we had no way of getting back into the plane. The escape chutes had to be recertified by FAA inspectors when they were repacked" and the passengers didn't want to wait around.

Riding the 747 to Hawaii recently where they work on Ventura's Mark 30 underwater target program were John Hebrick, Lloyd Simpson, George Riordan and Ray Yates, among others.

* * *

Earthquake Aftershocks: Ventura personnel in the "skunkworks" of the Mark 30 underwater target office were the target for inside jokes as the Manufacturing facility was flooded when a pipe broke. But Mark 30 Manager Orv Kyler dryly denies that the "underwater office," as it is called, really wanted to be underwater.

Chuck McCormick of the Tool Crib should have been given some sort of prize for adapting to the situation with the materials at hand. Unable to locate rubber boots for the mop up, he donned big plastic bags over his shoes, taped the tops and was ready for action.

At least one Ventura product, the Mark 30, was mildly affected by the quake—a major vendor in the San Fernando Valley had to close down for a few days for repairs. At last report the Mark 30 part was resting safely on a bed in a motel where the company had set up temporary headquarters to maintain business. Mark 30 production was not delayed, however.

Helping to avoid major damage with the pipe break and flooding were four Maintenance department men who were at the plant when the quake hit. Wilbur Leeds, Don Woodard, Norris Drewry and Tom Cotton reacted quickly.

They made a fast assessment of the situation for John Steman, Plant Protection officer, and reported the problems to him when he arrived at 6:20 a.m. Mr. Steman ordered Claude Johnson, a security guard, to shut off the broken line while the other four men turned off the main valve to the domestic water.

NORTHROP NEWS

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 Editor—Ventura Division Peter Toll
 Editor—Business Affairs Rosemary Hussey

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SURPRISE ON THE SECOND FLOOR
Warren Clymer, left, Walt Sternadel share fun with Jim Karas.

Surprise! Jim Karas Feted With Shower for his Baby

What started out as a formal discussion of economics ended in a surprise meeting concerning tax exemptions as Jim Karas was feted by his co-workers in the Financial Management department with a baby shower in late January.

Walt Sternadel, vice president of Financial Management at Ventura joined the conspirators and led Mr. Karas into the Financial Conference Room where more than 20 people shouted "Surprise!"

On the table in front of the surprised Mr. Karas were 19 wrapped baby gifts, cakes decorated in a nursery motif and all the related necessities for a small party.

Betty Dino and Joanie LeVasseur baked the cakes and coordinated the surprise party in honor of Mr. and Mrs. Karas' first child.

Mr. Karas was taken aback when first confronted with the surprise party. "Well, you sure surprised me, I'll say that," he told the group.

She Didn't Tell

He said later that he and his wife, Carol, were most appreciative of the shower. Mrs. Karas was aware of the shower, Mrs. Dino said, but joined the others in keeping it a secret.

Michelle Louise Karas was born Feb. 15 at Ventura Community Memorial Hospital. She weighed 6 lbs. 13 ozs. at birth.

747 TO AIR CANADA

100th Superjet Is Delivered by Boeing

The Boeing Company last month marked the delivery of its 100th Boeing 747 superjet when Air Canada accepted the first of three 747s it has on order.

Over the past 14 months 21 airlines have taken delivery of 102 Boeing 747s.

In service with air carriers operating around the world, these planes have carried more than 7.2 million passengers. They have flown 164,000 revenue hours, traveling more than 80 million miles.

A total of 204 superjets have now been ordered by 29 major airlines around the world.

At the Aircraft Division, where a major portion of the passenger-carrying fuselage is fabricated, employees have recently completed delivery of the 148th shipset of components for the 747. One shipset of components is being produced every four working days at Northrop.

Among interesting studies made recently involving 747 operations was one that indicated that more passengers were car-

ried, less airport traffic and less noise pollution resulted from U.S. airlines operating 747s on international flights from New York's John F. Kennedy Airport.

The comparisons were made between second and third quarter operations of 1970 and simi-

lar periods in 1969. Boeing analysts report the decrease in traffic congestion corresponds with increased use of the 747. In short, the 747 can carry more passengers per flight, yet cause less air traffic delays during peak hours and less noise exposure.

Ventura Credit Union Re-elects Via, Announces 4.85% Dividend on Savings

Johnnie Via was re-elected president of the board of directors of the Ventura Division Credit Union after members elected a 1971 board and learned the average annual dividend is 4.85 per cent on credit union savings.

Earl Morgan is the vice-president, Joe Sliakis is treasurer and Joyce Nelson is the secretary. Assistant treasurers are Warren

Clymer, Ralph James and Joe Pulver.

Leo Karas chairs the Credit Committee and Steve Wrubel is secretary. Also on the committee are Shirley Combs, Karl Stoy and Carol Boyer.

The Ventura Credit Union operates in offices next to the cafeteria in the Administration Building. Office hours are 11 a.m. to 12:30 p.m. and 3-4 p.m. daily.

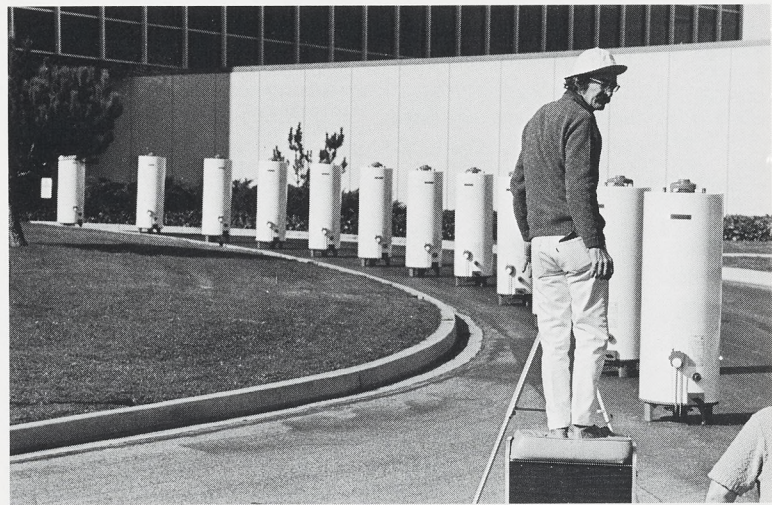
PAPERS PRESENTED BY HUSS IN HAWAII

Ventura Division's Ron Huss presented two papers at the Fourth Hawaii International Conference on System Sciences in Honolulu recently.

"Invariant Imbedding and Random Boundary Value Problems" and "Mathematical Problems of Electrocardiographic Monitoring" were the titles of the papers.

The latter presentation dealt with work Mr. Huss has done at Los Angeles County Hospital where research is taking place in computer monitoring of patients in the coronary care unit.

Lots of Water Heaters



THE PAYNE FASTBACK water heaters were lined up in the Ventura Division driveway recently so Nolan Patterson could make an advertising picture for the N. W. Ayer/Jorgensen/MacDonald, Inc., agency. The attractive division is a favorite for many photographers.

VENTURA RECREATION CLUB ROUND-UP

ROD & GUN CLUB

Eight members of the Ventura Division Recreation Club-sponsored Rod & Gun Club were awarded trophies at the club's annual awards dinner.

John Lawrence was named "Sportsman Of The Year." Top team sportsmen were Karl Stoy and John Rowe. Chuck Stokes received a trophy for being the best hunter and Earl Muehlenbach was the best shooter.

Top freshwater fisherman was Bill Shultz while Dick Shewmaker was his counterpart in the salt-water department. Most Improved Sportsman title went to Carlene Connelly.

Nearly 100 Rod & Gun clubbers and their guests attended the event at the Chatsworth Center. Members of Mr. Stoy's winning team were served dinner by Mr. Lawrence's losing team.

Master of ceremonies for the event was Don Kohn, a longtime member and past commissioner. He was the surprise recipient of a gag award for "least improved sportsman."

Also honored, legitimately, was immediate past-president of the Rec Club, Dorothy Prychoda. New president Bob Calhoon presented her with a special gift. Mrs. Prychoda began her Rec Club service as a Rod & Gun member.

Taking over as commissioner of the club is Hal Hunsberger. Harry Caseldine had to step down from the post when he was transferred to an East Coast operation.

Venturans interested in joining the Rod & Gun Club's many activities are invited to contact Mr. Hunsberger on ext. 535.

GOLFERS COMPETE

John Peterson's 66 was the best score of the day as Ventura Division Golf Clubbers played the Elkins Ranch course in Fillmore on Jan. 30.

Mr. Peterson won the A Flight with Buck Gilmore shooting 69 for second and Ron Aitken firing a 70 for third.

Chuck Brune carded a 74 to win the B Flight with three golfers in a close battle for the runner-up spots. Bill Willer prevailed with a 77. He was followed by Warren Sparks, 77.52, and Al Hahn, 78.04.

Winning the C Flight was Roy Shelley with a 68. Wayne Merritt's 73 gave him second as Pat Cloward barely nipped Ralph Basco, 76.70 to 76.76 for third.

Lois Sheridan took the ladies title for the day with a 78. Sue Wiscaver was next with an 88 and Clara Curtis took third with a 90.

Mr. Gilmore's 69 in the A Flight was aided by hitting the longest drive of the day and being closest to the pin on a par three hole. Other par three

"closest" winners were John Breneman and Bill Downs.

Ventura golfers played the Vista Valencia Course in Valencia on Feb. 20 and will tackle the Ojai Valley Inn and Golf Club course on March 20.

BRIDGE CLUB ELECTS

Leon Scrydloff succeeded Terry Chin as president of the Recreation Club - sponsored Ventura Bridge Club in ceremonies Jan. 30 at the Pavilion in Camarillo.

Cal Peterson was elected vice-president, Tanet Palmer is secretary-treasurer and Bob Tracy is the director.

Bob Feakins was honored as

Player of the Year and Miss Palmer was named Most Improved Player as several club members received honors for year-long competition.

LICENSE TABS SOLD

More than 300 Ventura Division personnel took advantage of the Recreation Club-sponsored sales of California motor vehicle license tabs for 1971. Sales took place in the cafeteria at lunch time.

Coordinating \$7,287 in tab sales was Gary Donnelly of the Thousand Oaks office, Automobile Club of Southern California.



ROD & GUN CLUB HONORS TOP SPORTSMAN
John Lawrence, left, received top club honor from Don Kohn.



FOR SERVICE TO THE REC CLUB
President Bob Calhoon presented gift to outgoing President Dorothy Prychoda.

NORTHROP NEWS

VENTURA DIVISION

Northrop Corporation, Los Angeles, California

Vol. 29, No. 5

March 17, 1971

Gen. James Will Speak To Managers

Brig. General Daniel (Chappie) James, Jr., USAF, deputy assistant secretary of Defense for Public Affairs, will be the guest speaker at the Friday, Mar. 26 dinner meeting of the Ventura Division Management Club.

Gen. James is the first military man to be appointed the Pentagon's assistant secretary for public affairs. He is a veteran combat pilot.

"We are very fortunate to have Gen. James speak to us," said Management Club President George Bostater. "He is a sought-after speaker and has a very busy schedule."

Chappie James is a big man in every sense of the word.

Combat Veteran

He was the first black man to qualify as an advanced instrument pilot in 1947. During the Korean conflict he crammed his 6-4, 250-lb. frame into an F-86 and flew 101 combat missions, earning the Distinguished Flying Cross. Later he added 78 more combat missions with an F-4 in Vietnam.

Before being promoted to the general staff in early 1969 he was commander of Wheelus AFB in Libya. Wheelus was the largest U.S. airbase outside the United States at the time.

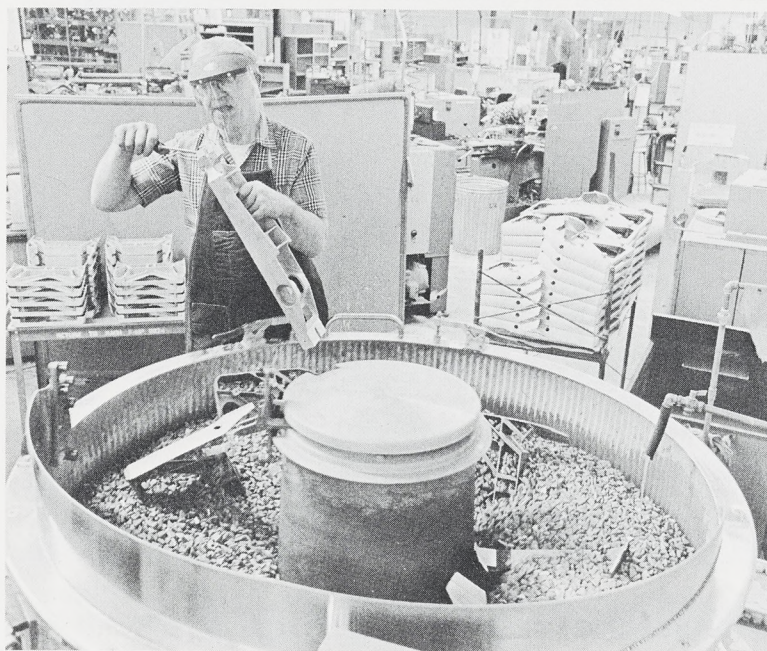
Gen. James considers himself the original "Black Panther." He adopted the insignia of the feared jungle cat in 1950 when flying fighter missions in Korea.

A Big Difference

"The only difference is," the general is known to respond, "this Black Panther fights for his country."

In his current job Gen. James conducts frequent Pentagon briefings for the press. One of his key concerns is the plight of U.S. servicemen held prisoner in North Vietnam.

The POW situation is probably one of several topics he will cover in his meeting with Ventura managers at Los Robles Inn later this month.



HENRY BREND NOW HAS DOUBLE PROTECTION
Plastic visor over safety glasses assures safety for Wise Owl.

Safety Glasses Pay Again For Three More Venturans

Three Ventura Division men have joined the "Wise Owl Club of America" by avoiding serious eye injury through the use of protective safety glasses.

Henry Brend, Monty Cable and Raymond Gibson join Douglas Main and Kenneth Mah in the exclusive group sponsored by the National Society for the Prevention of Blindness.

Mr. Brend's accident occurred when he was monitoring the vibra-deburrer in the Machine Shop. He was using a screwdriver to remove a hard plastic "rock" jammed in a JATO fixture when the rock came out with unexpected force and smashed into his safety glasses.

The lucky Mr. Brend now has double eye protection; he wears a hard plastic visor over his prescription safety glasses when cleaning the JATO fixtures.

Mr. Cable and Mr. Gibson were involved in similar mishaps when their drill tips broke sending the sharp steel directly into their faces where their safety glasses absorbed the brunt of the force. Both were unhurt.

The fortunate Wise Owls receive membership certificates, lapel pins and special badges from the New York-based NSPB which has been coordinating with the Ventura Division since September of 1964.

NOBLE DISCUSSES MK 30 FOR AIAA

The Ventura Division-produced Mark 30 underwater target was the topic discussed by Tom Noble at this week's meeting of the AIAA's Pacific Missile Range section at Pt. Mugu.

Mr. Noble, in charge of new product development for the Underwater Systems group at Ventura, also showed a 20-minute film featuring the Mark 30 target system.

Following the film he discussed the functions, performance, and operational test results for the target, as well as production program plans and target improvements currently under development.

Before that time various goggles and protective headgear were available to personnel, explained Nurse Elinor Eckels.

"Since then the company has brought in an optometrist to examine eyes for prescription safety glasses at low prices and the glasses can be paid for through easy payroll deduction," Mrs. Eckels said.

She said personnel have also purchased safety glasses for non-Northrop use. "Sportsmen, home hobbyists, even people who are afraid of what might come flying up through their lawnmower take advantage of the program.

"If we have prevented the loss of vision in just one eye we have more than proved the success of adopting the program," Mrs. Eckels added.



HOW IT HAPPENED
Ray Gibson and broken bit tip.



PROTECTED HIS EYE
Monty Cable also was unhurt.



THEIR MATERIALS ARE EXPENSIVE

Alma Arroyo, Gene Baca and Chuck Gray in graphic cost display.

Cost Cutting Ideas Can Be Found in Use of Materials

Looking for a way to save money in your job? You don't have to look any closer than the materials at hand if you work in the Manufacturing area.

At least that's the case with personnel in the 747 areas of spray finishing, honeycomb fabrication or plastics lamination.

"There are material savings possibilities throughout Production Operations," explained Walt Claycomb, coordinator for the Ventura Division's Suggestion Awards Program. Mr. Claycomb arbitrarily zeroed in on those 747 areas for an illustration of his point.

Personnel in those departments work with materials which cost \$5,702.29 in their full rolls or containers. "And that just represents 14 of the many standard working materials used in the area," he said.

A gallon can of gray teflon coating, for example, costs \$38.25. A roll of white tedlar sheeting 72 inches wide has a price tag of \$1,040.70. Special red adhesive tape used in lamination costs \$1,000 per roll.

Also among the most expensive items are rolls of clear tedlar film. A roll 48 inches wide costs \$687.96, one 60 inches wide runs \$825.23 and the big, 72-inch roll, has a price tag of \$1,004.63.

Others on the list of 14 include a standard sheet of raw honeycomb, 43 inches wide by

116 inches deep, \$182.45. A gallon can of green primer paint is \$13. It costs \$468.72 for a 54-inch roll of green laminating plastic sheeting.

Also, yellow 3 mm. sheeting 107-inch roll, \$185.03; the same in a 72-inch roll, \$170.63; a roll of aluminum spray finishing wire, \$32.49; a gallon can of metal treatment, \$38.52; and a roll of 4-inch bleeder cloth, \$14.68.

"Standard operating procedures with these materials are intended to minimize waste," Mr. Claycomb said. "At the same time there is probably some room for better utilization which can further reduce costs."

He urges personnel in all areas to be aware of materials which they use and to be alert to improvements which can reduce usage and save money. Suggestions pay for the company and the suggester, he reminds employees.

Headed for The Golf Course

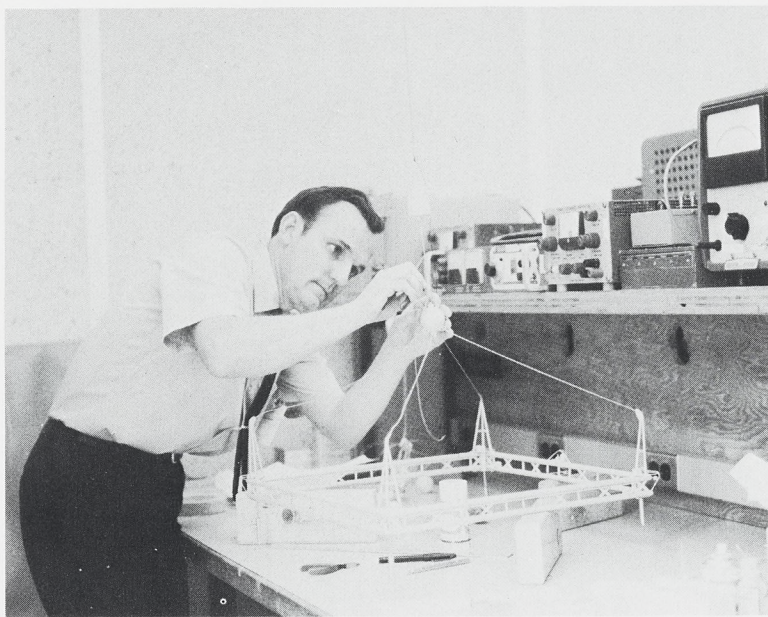


MARGARET BOURLAND reads card from co-workers upon her retirement after 25 years and four months as a welder at the Ventura Division. Mrs. Bourland told well-wishers at the surprise party that she plans on lots of golf and travel with her husband, Ray, a retiree.

ON ADVISORY BOARD

John Steman, Plant Protection officer at the Ventura Division, has been re-appointed by the Ventura County Board of Supervisors to the county's Flood Zone III Advisory Committee.

Mr. Steman, a Camarillo resident, was first named to the seven-man board in 1967. His current term is four years.



FINISHING TOUCHES
Fred Bailey completes working model of sea floor excavator.

Northrop Helps Equip Elephant 'Squad Cars'

Elephant "squad cars" are being equipped with Hallicrafters two-way radios in Thailand.

A recent festival in Surin, Thailand, featuring a massive elephant round-up drew a crowd of more than 100,000 persons. Police attempting crowd control at

the Mardi-Gras-like celebration found that radio-equipped jeeps and motorcycles disturbed the elephants being used in the festival.

According to B. D. Drezner, Hallicrafters vice president-International Sales, the Thai police rented 20 elephants of their own and equipped men riding them with Hallicrafters FM-1 two-way radios. The elephant "squad cars" circulated without trouble among the crowd and festival elephants.

The Surin police reported that "crowd control has always been a problem at the carnival."

But this year, with a helping hand from Hallicrafters, the event moved smoothly.

Hallicrafters is a subsidiary of Northrop.



ELEPHANT 'SQUAD CAR' IN ACTION
Official uses Hallicrafters radio in crowd control chores.

EARTHQUAKE BOND AID OFFERED

The Department of the Treasury has taken quick action to speed replacement of, or payment for, U.S. Savings Bonds and Freedom Shares lost, stolen, or destroyed in areas of Southern California adversely affected by the earthquake last month.

The emergency procedure will be in effect through March 31.

Under this procedure, the 90-day waiting period on replacement of lost Bonds and Freedom Shares has been waived. At the same time, the Treasury has authorized paying agents to pay any Series E Bonds in hardship cases, even though the bonds have not been held the required 60 days, or any Savings Note (Freedom Share), even though the note has not been held one year from the date of issue.

Envelopes bearing replacement forms should be marked on the outside "For Special Handling—Southern California Disaster Area." They should be sent to the Bureau of Public Debt, Division of Loans and Currency Branch, 536 South Clark St., Chicago, Ill. 60605.

Know Your Industry

Northrop Corporation's A-9A and Fairchild-Hiller's A-10A experimental attack aircraft are being developed under firm fixed-price contracts of \$28.9 million and \$41.2 million, respectively. Each company is building two of its own design for use in the "fly before buy" concept of evaluation.

During a fly-off program the aircraft will compete against a pre-established performance chart, including stability, control, handling and ordnance delivery capability. But the two designs will not be pitted against one another on a head-to-head competitive basis.

BAILEY PRACTICES

Model Building With a Purpose

Model building is a popular hobby—but not with Fred Bailey, industrial designer for the Electro-Mechanical Division. His model building is serious work made to evaluate concepts and to show prospective customers how a proposed product will look and work.

Mr. Bailey's latest model is of the Northrop Deep Sea Excavator which the division is engineering for the U.S. Navy. The model reduces piles of charts, blueprints and diagrams to something concrete that both the designer and the customer can see.

In many cases such models disclose problem areas that were not apparent in the original engineering drawings. In one case a radar image was partially blocked because the operations and picture controls module protruded into the antenna image range or area. This conflict was not apparent in the drawings, but was clearly indicated by the model.

Mr. Bailey first began to build small models seven years ago. Up to that time full scale models were built. However, a small model he made of the TIPI (Technical Image Processing Interpretation System) showed that small scale models are entirely practical for preliminary study visualization of design concepts.

The TIPI model also showed that these small scale replicas had other uses. This one was sent to Wright-Patterson Air Force Base on five occasions where it was used as a graphic

aid in briefing Air Force cadets on the system. It was also found that non-engineering personnel were able to grasp the principles involved much faster from these working models than from graphs and charts.

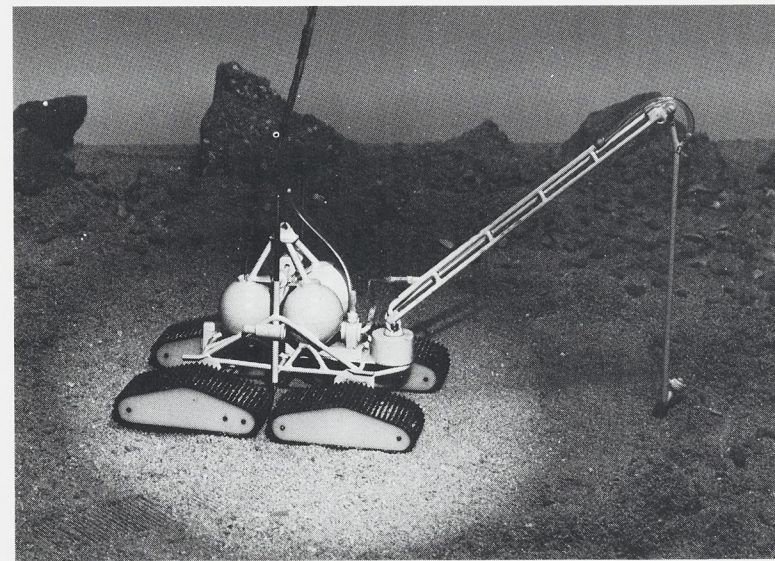
"Viewers can walk around the model and see it from all angles," Mr. Bailey said. "They can also operate it. In this way the team presenting the idea can save a lot of words and time."

In the past an objection to small scale working models has been that it usually takes about as long to build a model as the real thing. Mr. Bailey says this is not true anymore. He has come up with some time-saving ideas. For one thing, he uses a

plastic acetate instead of plexiglass or wood. Unlike plexiglass or wood, which must be sawed, this material can be scored and broken cleanly. It is then put together quickly with acetone, which fuses the parts. After this the parts are painted to simulate metal or wood.

Every part is to scale and is based upon the original engineering drawings so that the finished machine is a miniature prototype of the original. Precision motors for model aircraft are geared down to provide power for the moving parts.

Mr. Bailey, who has a 22-year background in industrial design and commercial art, has been with Northrop 18 years.



CLEAR CONCEPT
Another deep sea excavator model is depicted here. Tiny motors are geared inside to produce life-like movement.

Credit Union Fills Official Offices

February was a busy month for the Northrop Credit Union as members re-elected the board of directors for the coming year and the directors in turn, filled official and appointive offices.

The board is comprised of G. W. Thornton of Northrop Data Processing; R. A. Lindsey of the Electronics Division; and Mary B. Delaney, H. L. Cook, L. L. Cripe, D. H. Grothe, R. D. Hampton, J. J. Richardson and W. D. Schramm of the Aircraft Division.

New officers are: Mr. Thornton, president; Mr. Lindsey, vice president; and Mrs. Delaney, secretary-treasurer.

The two elected committees included the Credit Committee chaired by Margaret Faubion and members G. F. Kasson and W. H. Young and the Supervisory Committee chaired by H. H. Sweet which includes T. A. Hruska, W. J. Crown, E. R. Foord and A. W. Johnson.

Subordinate officers named by the board are: W. H. Morris, assistant treasurer; Catherine M. Walker, cashier; Helen Walker, membership chairman; and loan officers Margaret Faubion, G. F. Kasson and W. H. Morris.

Institute Honors Seven With Rank of Fellows

Seven Northrop men have been honored by the Institute for the Advancement of Engineering for outstanding contributions.

Winfield Arata of the Corporate office, Dave Badger, Robert Clooney, Charles Eyres, Howard Marx and Sidney Thurston of the Aircraft Division and William Oakes of the Electro-Mechanical Division were elected Fellows in the Institute for the Advancement of Engineering.

Robert Hutchinson, president of the Los Angeles Council of Engineers and Scientists, presented the awards at a Feb. 26 luncheon to recognize their "outstanding service to the advancement of the profession."

AFA to Spotlight 'Aerospace Crisis'

A special symposium on "The Aerospace Crisis" will help kick-off the 1971 California State Air Force Association Convention to be held March 26-28 at the Huntington Sheraton Hotel, Pasadena.

This symposium highlights the convention theme — "Do We Care?" — and reflects the interest and support of the AFA in matters pertaining to the nation's aerospace industry.

The special symposium will be held 9 to 11:45 a.m. March 26, following a breakfast featuring a speech by G. L. Sheffield, California's director of the Department of Human Resources.

Northrop's Dr. William C. Ellet, Corporate Market Research and Analysis, will be a featured member of the symposium.

Northrop's honorees were nominated by the Los Angeles Section, American Institute of Aeronautics and Astronautics.

The Institute for the Advancement of Engineering is comprised of professional technical societies, engineers, educators, industry, commerce and community leaders working together to advance the art and science of engineering and to provide suitable recognition of engineering achievement.

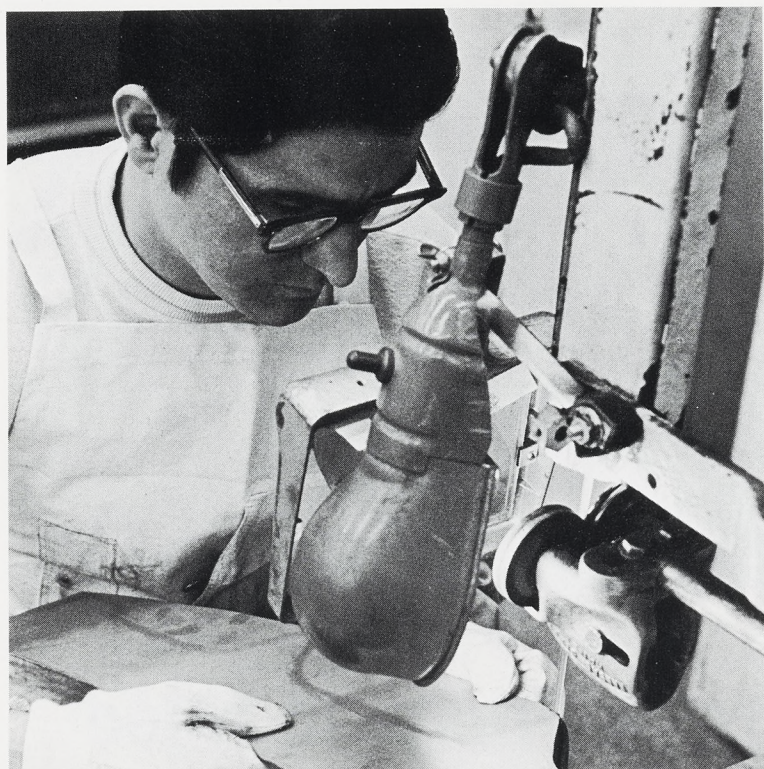
Seven From NDP Hold Certificates In Data Processing

Since its inception less than 10 years ago, the Certificate in Data Processing (CDP) program has achieved international prominence as a means of gaining stature and recognition for demonstrated knowledge in data processing and information management.

Seven members of the Northrop Data Processing organization — Rudy Fontes, Victor Garcia, G. W. Thornton, K. N. Westbrook, B. M. Slotnick, R. D. Mast and H. L. Worrel — have earned this distinction.

Qualifications for the CDP designation are stringent and include the passing of a detailed examination given, graded and administered by an independent specialized organization.

In 1968 some 2,936 candidates sat for the examination; 1,699 passed it successfully. The following year 1,748 sat for the exam with only 962 passing it successfully.



BAND SAW OPERATOR David Roybal, using the template cutout, prepares sheet metal for forming.



DON MOSLEY makes final trim on parts prior to shipment to assembly areas.



HYDRO-PRESS, operated here by Dennis Peck, is used to form parts for SST other than frame assemblies.

Forming of Titanium for The U.S. SST Is Big Job at Northrop

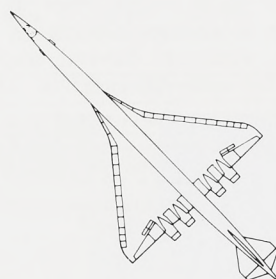
A major portion of Northrop's work in building the cab section and moveable nose of the U.S. SST involves sheet metal forming of titanium.

For more than 10 years Northrop has performed research and development work in this area. During that time the company accomplished a number of new advances in hot-forming and sizing techniques as well as machining, welding and diffusing bonding of titanium.

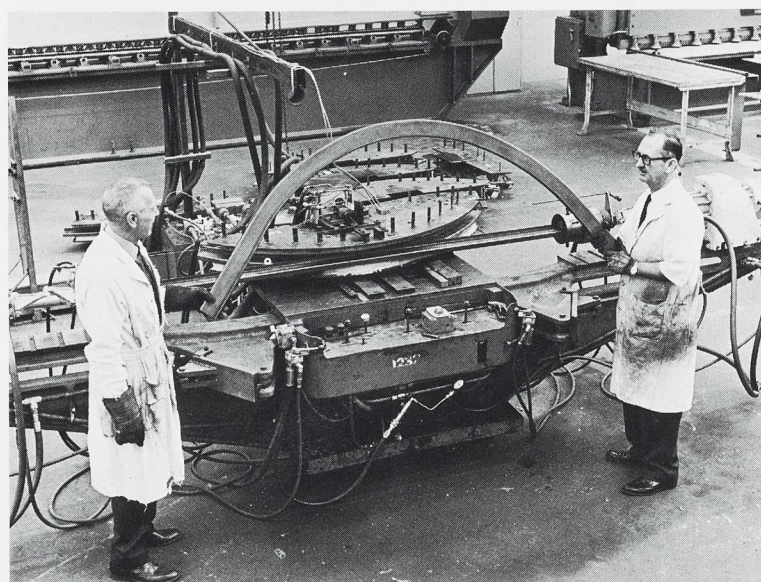
Step by Step

The photographs on this page, taken by Ron McGaffin, depict the titanium fabrication process at Northrop.

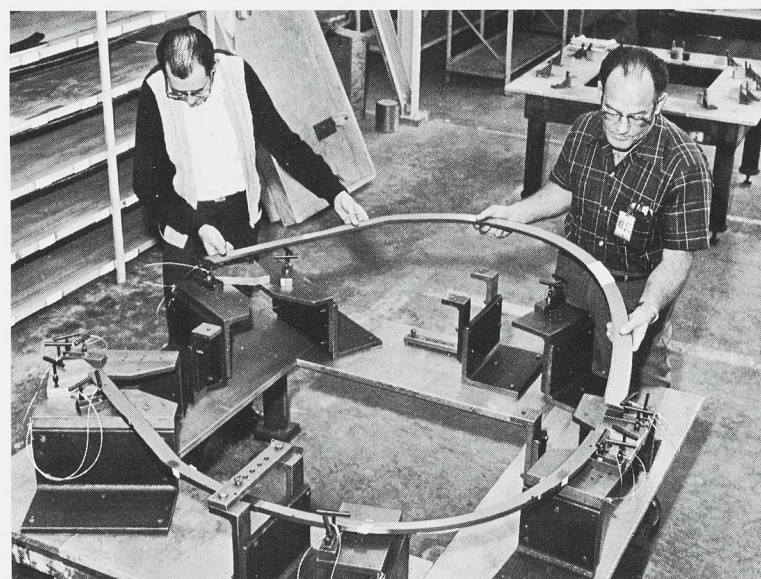
SST fabrication operations are conducted in the Aircraft Division's Plant One under the supervision of C. B. Flemgen. Assembly activities are accomplished in Plant Two under the direction of General Supervisors Joe Blair and "Ollie" Larson.



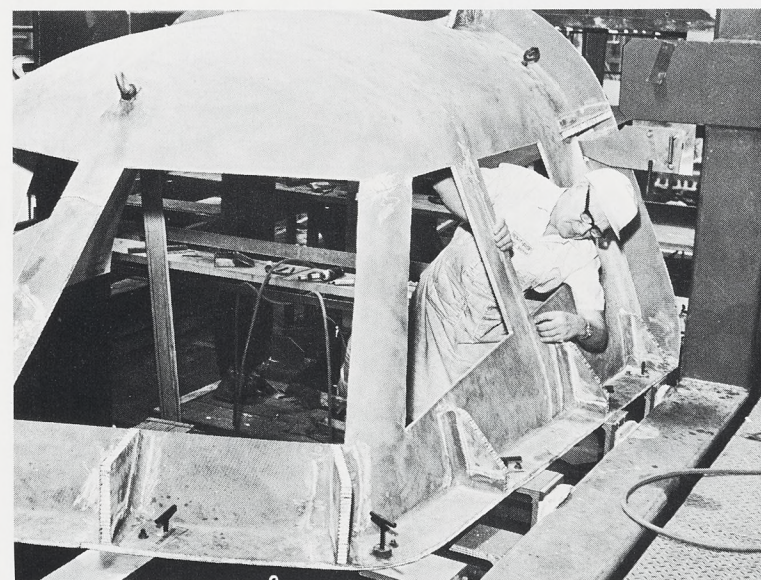
HERB MANOLI uses templates to draw outlines of SST parts on sheet of titanium.



MANUFACTURING RESEARCH and Development Engineers Carl Morris, right, and Bill Manchester display frame assembly formed by heated die on stretch press.



J. F. SPRINGER, left, and **G. F. Brannum** load subassembly jig with finished titanium parts.



ALL COMPLETED subassemblies for the cab section of SST are integrated into the main jig, shown here being checked by L. L. O'Neill.



TITANIUM PARTS RECEIVE final shape in hot sizing press. The temperature of the dies being removed by Bob Bunn are approximately 1,450 degrees Fahrenheit.



BARBECUE PIT DAMAGE
Repair work is done by Gene Oren.



WALL CLEANING
Herb Gessner prepares walls.



BEEHIVE OF ACTIVITY
Employees work in backyard of Van Cleve home.

Northrop People Respond Quickly to 'A Friend in Need'

If you were to visit Ralph Van Cleve's home in Sylmar today, it would be almost impossible to tell that the house was nearly destroyed by the Feb. 9 earthquake.

Inside, the freshly plastered and painted walls are as smooth as the day they were built. Gone are the holes caused by furniture sent sliding across the floor. Much of the glassware, household items and furniture that were ruined by the quake have been replaced.

Outside, new windows reflect the sunlight that once entered the

home through pieces of cracked glass. A new stone fence stands over what once was a pile of bricks.

Nearly everything in the Van Cleve home now is as it was before the earthquake struck — thanks to the humanitarian efforts of more than 25 Electronics Division employees who volunteered their time and talents to help "a friend in need."

Mr. Van Cleve worked at Northrop for nine years. He currently is in the hospital on indefinite leave of absence, suffering from crippling arthritis.

Never Out of Mind

"We've kept in touch with Ralph ever since he had to leave us last June," said Lloyd Jones, deputy director of Product Support. "We knew that he lived in the earthquake area and we tried to phone him when it happened."

Once Mr. Van Cleve's former co-workers found out that he and his family were safe but that their house needed repair, they immediately began to organize a volunteer work crew.

Don Bodewig, a supervisor in the unit, visited the Van Cleve

home to assess the damages. Using his report, other employees set out to gather the necessary tools and materials.

Within a week the work crew was 30 strong and ready to begin. They traveled to the Van Cleve home—some from as far away as Orange County — on three weekends. Several employees brought their wives along

with them, others brought their sons.

Their work periods were long, sometimes up to 14 hours a day. They didn't have much money to spend, but they did have a lot of time.

"We ran into a few snags along the way, such as getting materials delivered to the home," said Mr. Bodewig, "but we man-

aged to complete the job on schedule."

Mr. Van Cleve was unable to be present at his home when the repairs were made, but chances are the earthquake that nearly destroyed his home also served to strengthen his faith in human kindness.

Taggart, Laven Make Last Class Despite Quake

It takes more than an earthquake to stop students of the Aircraft Division Management Development class. At least it takes more to stop Fred Laven and Claud Taggart, two Northrop employees assigned to the Palmdale facility.

Mr. Laven had just stopped his car in front of Mr. Taggart's house in Palmdale before coming on to Hawthorne where both were attending the Management Development class when the car began to shake.

"I thought the engine was running rough," Mr. Laven recalled. "Claud Taggart was just coming out his door and I saw the light fixture swaying and knew it was an earthquake."

Neither man realized the extent of the damage when they started for Hawthorne. Then along the Antelope Valley Freeway they began to encounter rock slides. Later they saw overturned mobile homes, a trailer on fire and a wall that had been knocked down.

First Detour

Their real troubles began when they approached the Newhall junction. Here they were stopped by the highway patrol who informed them that the Sierra Highway, State 14, was impassable.

They detoured through Newhall to the Golden State Freeway until blocked by a fallen bridge on the Golden State Freeway which had dropped 10 inches and looked as if it would fall momentarily. Another detour onto Balboa Avenue led them to cracked pavement and holes in the street.

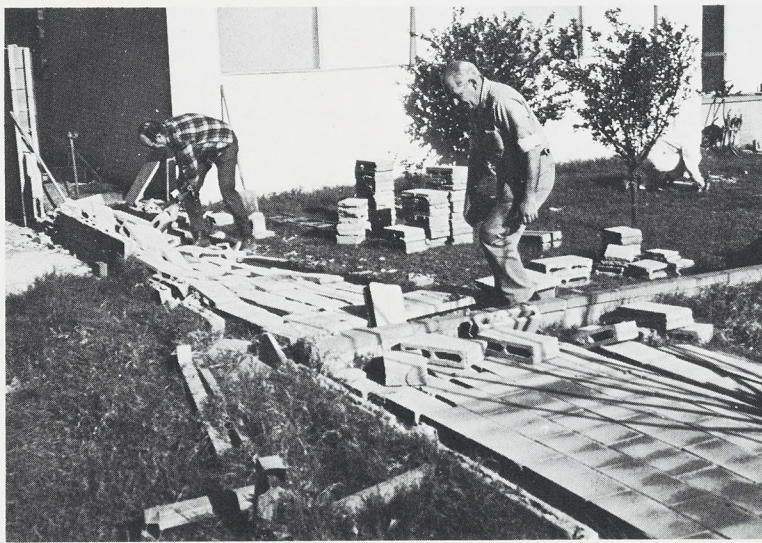
They finally made their way to the San Diego Freeway and rolled into Hawthorne only 30 minutes late despite their many detours.

After attending the final session of this Management Development class, they started home again to Palmdale, but had to detour around by San Bernardino to miss the devastation.

"It all made for a rather long day," Mr. Laven said.

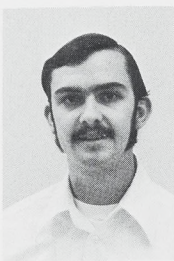


DIRTY FLOORS
Task taken on by Bill Phillips.



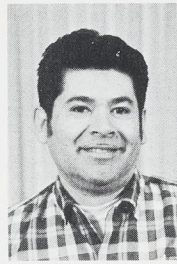
FALLEN FENCE
Reusable bricks are separated by Larry Pritchard, left, and Don Smith.

WE ASKED THEM—Do You Favor Changing our Measurements to the Metric System?



Ronald G. Bush, Calibration Laboratory support man, Electronics:

I'm all for it. I think it would make things a lot easier in the long run. However, I believe it would take most people a lot of time to get used to it because it is a more complicated system.



Robert Pina, machinist, Electronics:

No. I'm too used to the present system. A change to the metric system would only result in mass confusion.

Marge Schroeder, switchboard operator, Ventura:

It's hard enough for most people to handle the present system let alone change it to a new system. They'd never make it.



Mary Pass, secretary, Northrop Corporate Laboratories:

It would help to have a universal system throughout the world. Just for example, I have two girl friends from Wales who are always having trouble trying to convert Welsh recipes into American measures. And I suppose it is the same with all other kinds of conversions.



Fran Birch, statistical clerk, Electro-Mechanical:

No, I would not like to see the change made. It would involve too much expense. Everything we have now would have to be changed—measuring machines, rulers, signs and all the rest.



Cecil Wheeler, project dispatcher, Ventura:

I'm all for it. Standardization around the world would eliminate a lot of problems and the U. S. is one of the few countries in the world still using the system of inches, feet and pounds.



Glen Klinger, Tool Room attendant, Aircraft:

Yes. I would like to see a change to the metric system. It would be tough to learn at first, but better in the long run because it would put the United States on the same standard as the rest of the world. I remember I bought a European car once and had trouble getting wrenches to fit it.

A. W. Hogue, packaging analyst, Electro-Mechanical:

Looking at it as standardization of systems throughout the world, I suppose it would be a good idea. But, we would have to consider if the cost and time involved in making the change would offset the advantages.



Classified

Classified ad service is provided free of charge to all Northrop personnel. Ads for agencies, commercial enterprises and private businesses are not accepted. The Northrop News reserves the right to edit or omit ads. Obtain ad form C67 from organization clerk and mail ad to Northrop News, 170, zone 62. Ads are limited to one item and one ad per person each issue. Deadline is noon Wednesday, one week before publication.

Automobiles For Sale

- Pickup**, 1956 Dodge, V-8, p/s, r/h, \$350. 213-537-0438. A
- Thunderbird**, 1955, \$1,500. 213-675-9500. A
- Porsche**, 1969, 912, AM-FM-Shortwave radio, 27,000 mi., \$5,100. 213-329-4894. A
- Camp-Van**, 1965 Chevrolet, 4500 GVW ¾-ton, fact. installed camper, \$1,350. 805-495-7540. A
- Dodge**, 1970 Challenger, 383 mag., p/s, p/b, a/c, \$3,400. 213-370-0613. A
- Pontiac**, 1965 Catalina, 2-dr., h/top, p/s, p/b, a/c, auto., \$1,000. 213-676-0787. A
- Volkswagen**, 1965 sedan, sunroof, \$750. 213-597-3729. A
- Mustang**, 1965 sports coupe, \$1,150. 213-635-7843. A
- Chrysler**, 1960, 2-dr. h/top, a/c, \$295. 213-672-2370. A
- Plymouth**, 1967 Satellite, 2-dr. h/top, mag whls., 4-spd. console, \$950. 213-542-3688, 213-371-1301. A
- Chevrolet**, 1965 Impala, new brakes, shocks & exhaust sys., p/s, auto., \$850. 213-323-0877, 213-370-6400. A
- Renault Dauphine**, 1960, 31,000 mi., \$200. 213-379-0731. A
- Chevrolet**, 1940 sedan Master Deluxe, with r/b 1956 eng., new 16" tires, stick shift, \$300. 213-329-9484. A
- Land Cruiser**, 1967 Toyota, \$2,700. 213-534-5287. A
- Chevrolet**, 1969 Malibu, 350 V-8, p/s, p/b, a/c, tilt whl., \$2,650. 213-596-4606. A
- Truck**, 1969 GMC, ¾-ton, 350 V-8 eng., 4-spd. hvy. duty camper special, a/c, radio, custom cab, 16.5-12 wide rear tires, 1969 9' Open Road camper, 20,000 mi., many extras, \$4,500. 213-327-2126. A
- Van**, 1962 Ford Econoline, \$600. 213-370-3821. A
- Cadillac**, 1964, 64,500 mi., 2-dr. Coupe DeVille, completely equipped, extras, \$1,275. 213-477-3426. A
- Volkswagen**, 1958 sedan, rebilt. eng., r/h, \$300. 213-676-6565. A
- Volkswagen**, 1969, \$1,495. 213-329-3436. A
- Station Wagon**, 1967 Ford Country Squire, 9-pass., V-8, 390, auto., p/s, p/b, r/h, new tires & brakes, \$1,450. 213-378-6662. A
- Falcon**, 1961 2-dr., \$125. 213-671-1660. A
- T-Bird**, 1964, full power, a/c, new tires & battery, \$795. 213-423-1363. A
- Datsun Patrol**, 1965, 4 wd., r/h, hubs, 30-gal. gas tank, dual batt., \$1,600. 213-326-8273. A
- Studebaker**, 1959, V-8, stick, r/h, \$125. 213-542-5434. A
- Lincoln**, 1968 Continental, 4-dr., full power, AM-FM stereo, air, 36,000 mi., \$2,650. 213-324-2972, 213-545-3106. A
- Triumph**, 1965 Spitfire, \$695. 213-370-0851. A
- Volkswagen**, 1970, radio, console, 28,000 mi., \$1,550. 213-427-8314. A
- Station Wagon**, 1967 Dodge Coronet, 9-pass., fact. air, auto. trans., p/s, pwr. d/brakes, \$1,395. 213-835-8549. A
- Station Wagon**, 1962 Ford, rebilt. eng., auto., r/h, stereo tape deck sys., \$395. 213-325-2292. A
- Plymouth**, 1970 Road Runner, 440 6-pack auto., p/b, r/h, \$2,500. 213-645-3381. A
- Mustang**, 1967 Fastback 2+2, 19,000 miles, \$1,500. 213-644-0683. A
- Chevrolet**, 1962 Impala, 4-dr. h/top, V-8, auto., p/s, \$450. 213-377-9719. A

Household Items For Sale

- Secretary**, 2-pc., glass door bookcase top, folddown writing shelf, 4 drws., \$85. 213-374-6791. B
- Washer**, Philco, \$75. 714-672-4756. B
- Hospital Bed**, \$75. 213-534-3501. B
- Exercise Couch**, Stauffer, used very little, \$65. 714-772-4103. B
- Bedroom Set**, Early American solid maple, mattress, box spring, sanitized-treated innerspring mattress, \$275. 213-327-2922. B
- Stove**, Magic Chef, eye level oven, 1971 model, avocado, broiler, thermo burner, rotary spit, \$350. 213-329-8956. B
- Washer**, Kenmore, 3-cycle, 2-spd., \$85. 213-372-2728. B
- Power Sewing Machine**, Pfaff, zig-zag stitch, \$375. 213-675-5342. B
- Dishwasher**, Maytag portable, coppertone, \$200. 213-832-1780. B
- Chair**, Berkline, full recliner, blue & green, used 2 yrs., \$25. 213-676-9989. B
- Dining Room Set**, 5' breakfast, 3-glass dr. china closet, 44" pedestal table w/12" leaf, 4 caneback chairs, basic Witz of Virginia fruitwood, \$400. 714-836-0994. B
- Rolltop Desk**, old style, solid oak, pigeon holed, \$200. 213-542-3083. B
- Crib**, mattress, playpen, dressing table, car seat, high chair, tricycle, jumper chair, \$50 or sell sep. 213-327-4585. B

Household Items For Sale

Table Lamps, 2, platform rocker, chair, uphol., rug, 9x12, pad, \$120. 213-324-8853. B

Miscellaneous For Sale

- Tape Recorder**, Sears, w/5 reels, \$25. 213-830-5284. C
- Motorcycle**, 1969 Honda Mini Trail w/Honda 65 cc eng., 4-spd. gear box, clutch, \$180. 213-377-4660. C
- Ski Boat**, 14', 78A 70 h.p. Merc. motor, big wheel trailer, \$495. 213-675-2892. C
- Tent Trailer**, 1963 Apache, sleeps 4, awning, extras, \$450. 805-498-2307. C
- Flute**, Bundy, made by Selmer, \$50. 213-375-4314. C
- Dog**, English springer spaniel, liver, 1 yr. old, AKC reg., \$60. 213-671-1102. C
- Pullman Camper**, fits '66 Ford pickup, slide top, bunk, cabinets, ice box, awning, curtains, \$400. 213-675-7371. C
- House**, 4-bdrm., 2 baths, lge. family rm., cpts., dps., fully landscaped, fenced yd., 3 yrs. old, Palo Del Amo Woods, \$38,500. 213-534-4230. C
- Aquarium Units**, Pemco 15-gal. tank, biological filter, air pump, gravel, \$15. 213-541-3254. C
- Hardtop**, vinyl, for 1967 MG, black, \$75. 213-478-5784. C
- Air Conditioner**, for home, 220 volts, 10,000 B.T.U., \$175. 213-644-4632. C
- Lot**, at Canyon Lake, 60'x195', \$2,400 dn., club membership incl., \$8,500. 714-734-0543. C
- TV**, color, Packard Bell, 25" console, \$175. 213-373-3067. C
- Playhouse**, 6'x8' wood frame, can be dismantled, \$50. 213-833-0742. C
- Mirrors**, rear view, set of 2, fender mount, \$10. 213-377-3487. C
- Condominium**, 2-bdrm. & den, 2 baths, 1,400 sq. ft., cpts, dps., btins, 15 min. to Hawthorne facility, \$31,000. 213-674-1400. C
- Mag Wheels**, deluxe, set of 4, 14x7 fits regular tires, complete w/chrome nuts, spacers & hubs, \$89. 213-676-1235. C
- Dinghy**, 9' multi-hull glass, \$250; motor, 3 h.p. Evinrude, \$100. 213-676-6600. C
- Sailboat**, Irwin 24 Morc sloop, dacrons, roller reefing, 4 bunks, 20-gal. water tank, galley, RDF, 6 h.p. Evinrude, fiberglass hull, \$3,500. 213-320-3529. C
- Rowboat**, 13', slat decking, oars, anchor, \$90. 213-371-5072. C
- Pickup Box**, 8' Fleetside for ½ or ½ ton 1969 Chevrolet deluxe, \$100. 213-676-5141. C
- Home**, 3-bdrm., Hollypark area, Gardena, marble entry, b/fast nook, patio & cover, many other extras, \$26,950. 213-323-4729. C
- Acreage**, 4.9, California City near Galileo Hill, low interest, \$86 mo. payments, \$3,000. 213-775-1987. C
- Condominium**, in Yorba Linda, 3-bdrm., 2 baths, dble. car gar., air conditioning, \$21,500. 714-524-1376. C
- Pool Table**, Sears, ¾ size, \$150; mini bike, Go-Devil, 2½ h.p., carrying case, \$125. 213-832-0606. C
- Box Trailer**, 6x7x4, coil & leaf springs, 6-ply nylon tires, spare, \$260. Box 501. C
- Piano**, Baldwin Acrosonic spinet & bench, mahogany, \$575. 213-894-1381. C
- Trombone**, Getzen, B flat, \$75. 213-370-6896. C
- Adding Machine**, Victor, 10 key, carrying case, \$35. 213-321-0020. C
- Stereo Console**, 5', walnut, sep. spkrs., tuner, preamp/amplifier, tape recorder, Korting stereo/mono, Mod. 157/158, record changer, Garrard RC88, Mark II 4-spd., 3-way spkrs., \$200. 714-547-0676. C
- Holster**, chamois lined, .38 belt, Lawrence 27 STC, safety strap & leg thong, \$12. 213-545-6719. C
- Acreage**, 5 acres, Antelope Valley, view, near paved rd., \$400 dn., \$6,000. 213-378-1026. C
- Speakers**, stereo, 2 Wharfedale W60E, less than 1 yr. old, \$200. 213-374-5530. C
- Radio**, AM-FM console, walnut grain cabinet, \$10. 213-679-5506. C
- Picture Windows**, 2 48"x60", \$10. 213-379-4517. C
- Home**, 2-bdrm., living & dining rm., kitchen, bath, cpts., garb. disp., big R-2 lot, 10 min. from Northrop, \$18,500. 213-371-3479. C
- TV**, Muntz b&w, 23" console, \$30. 213-675-1616. C
- Pups**, poodle, 1 white, 3 apricot, AKC, tiny miniatures, \$50 ea. 213-866-4104. C
- Golf Bag & cart**, \$6. 213-679-1631. C
- Mobile Home**, 1966 Paramount, 20x55, 2-bdrm., 2 baths, must be moved, \$6,000. 213-329-2571. C
- Trailer**, tandem, 8'x14', 4-whl. Stromberg hyd. brakes, spare, flat bed, metal ramps, \$995. Box 502. C
- Acreage**, 2½ acre parcels, near Palmdale Intercontinental Airport, low dn. pymt. & int., cash discount, \$6,500. 714-871-1373. C
- Tuner**, AM-FM multiplex & stereo amplifier, Heath mod. AA-100 & AJ 41, 70 w. & aquariums, 6 5-10 & 3 gal., some fish, \$75 or sell sep. 213-675-0788. C
- Motorcycle**, 1969 Honda 350, \$500. 213-675-8278. C
- TV**, 23", color, 1½ yrs. old, Mediterranean console, \$350. 213-676-1576. C
- Home**, 3-bdrm., 2 baths, Spanish style, landscaped, blockwall, 3 yrs. old, Newbury Park, \$28,500. 805-498-8461. C

Wanted to Buy

- Radio Control Equipment**, 27 mhz, 4 to 6 channel, transmitter, receiver, servos, digital, proportional control, single or 2-stick operation. 213-430-1531. D
- Gun Cabinet**. 213-676-5654. D

MADE BY NORTHROP

Jordan's King Hussein Gets New Radio

King Hussein of Jordan, a ham radio fan who gained world-wide attention by talking with fellow hams in Europe and America during the recent civil war in his country, took time during a recent visit to Washington, D.C., to accept delivery of a new Hallicrafters SR-2000 system.

The King's SR-2000 system consists of the SR-2000 transceiver, the P-2000 AC power supply, the HA20 VFO DX'er unit and a base station microphone. It is a 2 kilowatt station that can be put on the air quickly.

Delivery was made to King Hussein by Cliff Matthews, Jr., and Robert Waters of Hallicrafters.

Rides and Riders

Rides Wanted

7 a.m. — 3:42 p.m.

Plane ride from Hemet or nearest airport to Hawthorne. Can change hours to 8 a.m.-4:42 p.m. Julie Karl, Aircraft ext. 1131, 213-375-0136, 714-679-1397.

8 a.m. — 4:42 p.m.

Springdale & Edinger, Huntington Beach. Paul Eckroth, Aircraft ext. 1477, 714-846-1858.

Rides Offered

8 a.m. — 4:42 p.m.

Springdale & Edinger, Huntington Beach. Paul Eckroth, Aircraft ext. 1477, 714-846-1858.

Wanted to Buy

Bumper Racks, for motorcycle w/taillights. 213-328-1114. D

Aquarium, 15 or 20 gal., with or w/out filter & heater. 213-328-4408. D

Canopy, reasonable, used, 3-sided, for 15' travel trailer. 714-528-3533. D

Wheelchair, collapsible, in good condition. 213-532-9099. D

Transmission, Chevrolet or GMC, with o/drive unit or 4-spd. trans. for Chev. 213-532-1824. D

Wheels, wide, & tires for 4-wheel drive Jeep. 213-370-7749. D

For Trade

Cadillac, 1940 60S, 4-dr. sedan, extra rebilt. trans. & rebuildable eng., trade for 1930-31 Model A Ford. 213-731-3608. E

Free (To Be Given Away)

Dog, 13 mos. old, German shepherd, friendly w/children. 213-376-4503. F

Rentals Offered

Cabin, Big Bear City, 1-yr. old, 2-bdrm., 1 bath, \$90 wk., \$45 w/end. 213-320-6486. G

Cabin, modern "A" frame, at Mammoth, sleeps 9, centrally located, \$30 day; \$150 wk. 213-833-0698. G

Studio Apt, lge. 2-bdrm., 2 baths, enc. gar., small bldg., Inglewood, adults, \$255 mo. 213-670-6084. G

Cabins, Lake Gregory & Crestline, sleep 6, \$25 w/end, \$60 wk. 213-391-2040. G

Cabin, Moonridge, Big Bear Lake, 3-bdrm., 2 baths, f/place, completely furn., family only, \$125 wk., \$50 w/end. 213-326-7232. G

Cabin, Green Valley Lake, \$65 wk., \$45 w/end. 213-320-2002. G

House, Bass Lake, \$150 wk., \$45 w/end. 213-374-3702. G

Vacation Cabins, Idyllwild, 1 & 2 bdrm., stream, patios, f/place, \$30-\$40 w/end, \$70-\$90 wk. 213-868-8040. G

Child Care

Child Care Offered, my home Mon. thru Fri., 6 a.m. to 6 p.m., infant to 3-yr-old, in Carson area. 213-830-7489. I

Child Care Offered, my home, Gardena area, lge. fenced play area, hot lunches, other children. 213-327-2305. I

Personals

I was deeply touched by the thoughtfulness & kindness of all my friends in giving me such a wonderful retirement party & unforgettable gifts. The love expressed will remain with me always. MADELYNE CRISTELLI. L

May I express my deepest appreciation to all my Northrop friends for their many good wishes, the lovely party & gifts they gave me on my retirement. M. K. "CURLY" GOUKER. L

I want to express my appreciation to all my friends & colleagues at Northrop who aided in the search for my daughter, Martina, & for the kind expressions of their sympathy for her loss. JOE PETERSON & FAMILY. L

For Sale or Trade

Pickup Truck, 1961 Chev., V-8, 8' cabover camper, \$1,350 or trade for 1969 or 1970 travel trailer, 25' or 26'. 213-542-4605. M

King Hussein, whose call letters are JY1, says he'll use the SR-2000 system on the extremely crowded 80, 40 and 20 meter bands in order to overcome the terrific interference created by other stations every time he goes on the air because of his great popularity with the ham radio community throughout the world.



ROYAL RADIO 'HAM'
King Hussein of Jordan.

EDITOR'S NOTEBOOK

An interesting item passed on to us requests help in notifying men eligible for membership in the Red River Valley Fighter Pilots Association of a pending annual reunion beginning May 7 at San Diego. This group calls itself the "River Rats" and includes those who participated in air campaigns against the most heavily defended area in the history of aerial warfare—North Vietnam's Route Package 6 which encompasses the Red River Valley, Hanoi and Haiphong area and runs to the Chinese border.

Organized in 1967, the "River Rats" now devote much of their efforts to making the public aware of the plight of prisoners of war and missing in action comrades believed held by North Vietnam. It has placed a bronze bell on the campus of the Air Force Academy commemorating the missing members. The bell will be rung for the first time when the POWs return. Brig. Gen. Robin Olds, commandant, Air Force Academy, is president of the "River Rats." Capt. George Vipond, 18 Erwin, Nellis AFB, Nevada 89110, is accepting reservations for the reunion.

* * *

Among the interesting bits of information to come our way about the SST program is one item which poses the question: "How will passengers react to an exciting new way to travel when the supersonic transports start flying scheduled airline routes?" Before we could let our imagination take wing and soar away in flights of fancy, we glanced down at the answer: "Probably with a yawn." And we came back to earth with a thud.

According to Boeing's William T. Hamilton, chief of SST Prototype Engineering, flying on the SST will be very similar to flying on any jet airliner. "The trip will be shorter, of course; the plane will be quieter inside; the seats a little wider; and the ride a lot smoother," Mr. Hamilton says. "There will be no rapid acceleration, and no sensation at all of going at three times the speed of sound. Remember we are designing and building a plane for people—you and I—and I can assure you the SST will have no jarring surprises for the passenger."

Mr. Hamilton noted that the two prototype SSTs now being built will be so full of electronic sensing and recording gear there will be no room for the comfortable seats he speaks of. During thousands of hours of flight time, the SST test fleet (ultimately to total seven aircraft) will operate at all speeds and altitudes to prove out the design details and the flight characteristics which the Boeing engineering team has been working toward for years.

NORTHROP NEWS

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No. 5

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Mrs. Bartz, Mr. Sternadel, Mr. Wetzel Reach 20 Years

Three Ventura personnel marked 20 years with the company this month, three more reached 15 years and another starts her second decade with Northrop.

Qualifying for 20-year pins are Marie Bartz, a target drone assembler; Walt Sternadel, vice president of Financial Management; and Lloyd Wetzel, Field Engineering and Training representative.

Mrs. Bartz has worked in many capacities in the Manufacturing operation since joining the division in 1951. Her latest assignment is the target production line. Her husband, Fred, is a foreman in Metal Fabrication.

Mr. Sternadel's first assignment was establishment of a material control system for the 600 OQ-19 targets which were being produced each month at then-Radioplane.



Mrs. Bartz



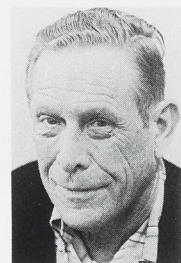
Mr. Sternadel

Charter president of the Ventura Credit Union, Mr. Sternadel

was also a co-founder of the Dollar Donors Club.

He established systems for general ledger practices, administration and internal audit before being named director of Accounting in 1958. Chosen treasurer of the division in 1959, Mr. Sternadel was appointed vice president of Financial Management on Aug. 11, 1967.

Mr. Wetzel started his Northrop career as an aircraft mechanic at the Aircraft Division in Hawthorne.



Mr. Wetzel

After just one day on the job he transferred to New Mexico with the Snark program and figures now that 18 of his 20 Northrop years have been spent on assignment

on the road.

He has served in Florida, Edwards AFB and El Paso, Tex. Transferring to Ventura in 1962, Mr. Wetzel has worked at Pt. Mugu, the Far East, and leaves in late April for Saudi Arabia.

Receiving 15-year pins are Dennis Sherwin and Sue Saubery of Financial Management, and Claude Berry, Procurement. Opal Johnson, of the Parolab, earned the 10-year pin.

MISS ZUNIGA WILL PERFORM FOR INSTITUTE OF FINE ARTS

Lupe Zuniga will be the guest artist and perform for the American Institute Of Fine Arts at the group's Sunday, Mar. 21 meeting at the Beverly Hills Hotel.

Miss Zuniga, a secretary in Management Information Systems at the Ventura Division, will sing selections from "The King and I," "Westside Story" and "Flower Drum Song" before the several hundred members expected to attend.

An accomplished soprano and performer in musical comedy roles which also include "Annie Get Your Gun" and "South Pacific," Miss Zuniga will be accompanied by piano.

She was named best musical comedy actress in a supporting role for 1970 by the Ventura County Theatre Guild for her portrayal of Anita in "Westside Story."

Miss Zuniga has also done considerable work in television and films and recently completed the role of Lisa in the motion picture "Impulsion" starring Alejandro Rey.

Edith Dean, secretary to George Grogan at Ventura, is a member of the AIFA.

Accountants To Hear Mr. Gasich

Welko E. Gasich, general manager of the Ventura Division, will be the featured speaker at the Tuesday, Mar. 23 meeting of the Conejo Valley Chapter of the National Association of Accountants.

Mr. Gasich will discuss the relationship between business and government operations at the 7 p.m. dinner meeting in the Holiday Inn, Thousand Oaks.

Among the Northrop personnel expected to attend are eight members of the chapter. Reservations for the meeting may be obtained by calling Eldie Lorentsen on ext. 391.

**IS IT NEWS?
CALL EXT. 1425
VENTURA**

VENTURA'S MAC PAKULA

Artist Looks At Africa

When Mac Pakula visited Africa recently, as reported in the Northrop News, he made a film and also found time to do pencil sketches of the people and the wildlife he encountered.

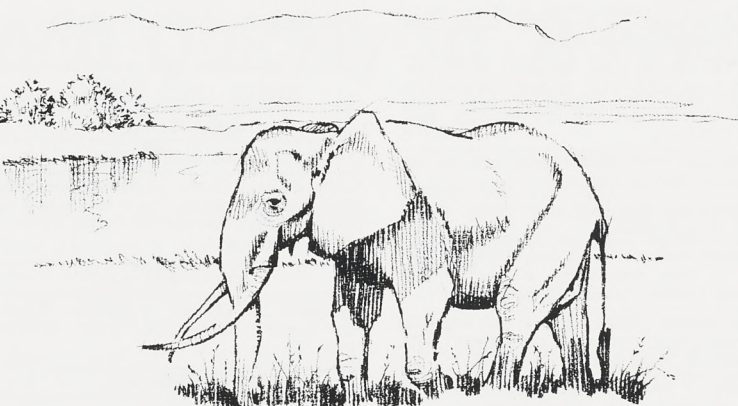
Mr. Pakula, a commercial artist of 3½ years at the Ventura Division, draws on an extensive background in art.

He is an alumnus of three New York art schools: Art Students League, School of Industrial Art and Cartoonist and Illustrators School.

A professional cartoonist for a dozen years, Mr. Pakula has worked on comic books, newspaper strips, and newspaper spot and editorial cartoons. He also has been self-employed as a commercial artist for advertising media.

Some of the sketches shown today will appear in the annual Art Show put on by artists and photographers of the Ventura Division Arts and Graphics branch. The show is scheduled for lunch in the Administration assembly room on Monday and Tuesday, Mar. 22-23.

If Mr. Pakula's work is an indicator, the show promises to be very rewarding.



VENTURA RECREATION CLUB ROUND-UP

"The men who walked on the moon were rockhounds with flight pay," said the bulletin board announcement. "Join the NVRC Rockhounds for an earth walk on Feb. 27."

And 22 Ventura personnel took up the offer of the rock collectors and dug up geodes and agates in the Agoura mountains off Kanan Road.

"We had a real good time,"

said Commissioner Fran Rush. "We did the mountains in the morning and then hunted along the Triunfo Creek bed in the afternoon. There we found an arrowhead and a prehistoric hand ax head."

The Rockhounds, which make monthly sojourns to interesting Southern California geological areas, are known for their straightforward announcements.



ROCKHOUNDS HUNTING GEODES

From left, Terry Kahn, Adaline Heckett, Paul Arent, Delio Piantino, Fran Rush, Kevin Toll. (Photo by Greg Rush)

On the Feb. 27 event bulletin was noted "kids, dogs and relatives welcome." And, preparing for all contingencies, at the bottom the bulletin said "trip cancelled in case of heavy rain or earthquake."



The newly-formed Rec Club-sponsored Models Club is looking forward to its first flying activity on Ventura Division property behind the Manufacturing Facility.

Gene Linhart, commissioner, reports the plot plan has been approved "and now all we have to do is get the runway graded and the control line circle established" before members can utilize the field.

The recent organizational meeting attracted 10 persons interested in radio control, free flight and control line types of model aircraft.

"Emphasis is on aircraft now," Mr. Linhart explained, "but people with other types of models also are welcome to participate." He can be reached at ext. 1245 for further information.



At least 10 men finished with net scores under 63 in one of the lowest scoring tournaments to date by members of the Ventura Division Golf Club. Par for the Vista Valencia Course, where

the Feb. 20 tourney took place, is 61.

Don Peterson won the C Flight on the windy day with a 54. Joe Sliakis took second with 58 and Wayne Merritt edged Ardon McKinley for third, 62.60 to 62.94.

Also breaking 60 was Fred Longo. He won the A Flight with a 59. Bob Jones was next with 61 and Bill Downs came in at 62. Al Cuilty's 60.71 won the B Flight as Mark Peterson and Warren Sparks tied for runner-up with 61.40.

The ladies were also swinging well. Lois Sheridan had a 63 to win the female flight and Clara Curtis shot 66 for second.

Mr. Jones was closest to the pin on two holes and Jaddis Martin was closest on the third.

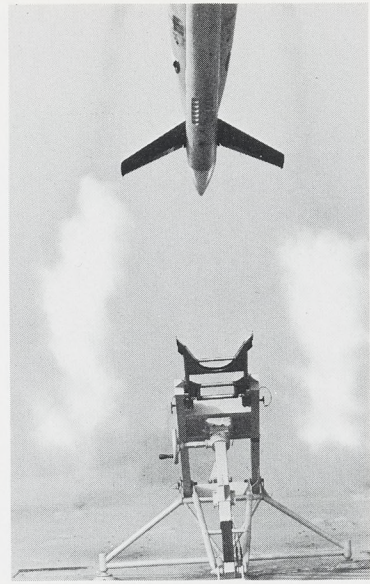
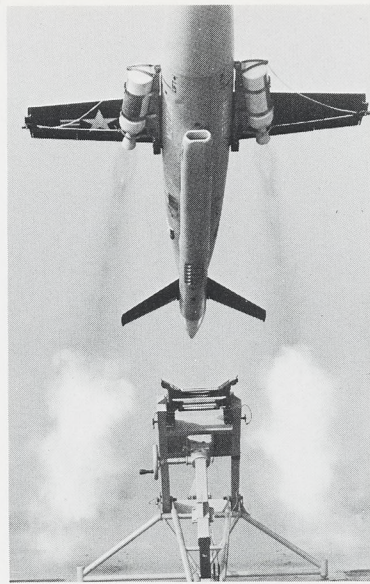
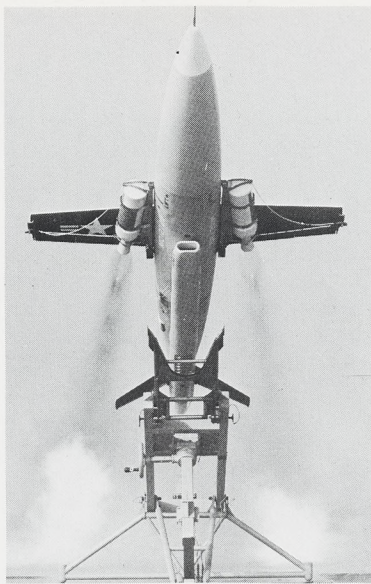
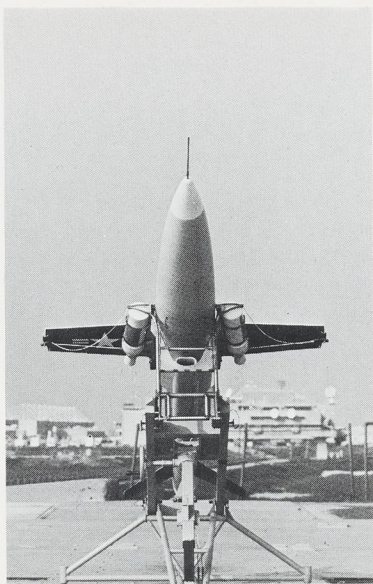


Members of the Ventura Division's Chess Club are now in business with new chess sets, clocks and instruction booklets for both beginners and advanced players.

Commissioner Ivan Blum is planning a noontime tournament as soon as ratings for the participants can be established.

Venturans interested in chess or the ancient Chinese game of Go are invited to contact Mr. Blum at ext. 1007 for further information.

NORTHROP MQM-74A STREAKS SKYWARD



NORTHROP NEWS

VENTURA DIVISION EDITION

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Vol. 29, No. 6

March 31, 1971



FOUR APOLLO PERSONNEL HONORED
From left, Jim Colunga, Oscar Cease, Norma Cretal and Buzz Correy.

Four in Parolab Receive Apollo Achievement Award

Three Ventura personnel who have packed all of the Apollo Earth Landing System parachutes, and another who has inspected their work, have received the Apollo Achievement Award from the National Aeronautics and Space Administration.

Honored in ceremonies recently at North American Rockwell's Space Division in Downey were Master Parachute Riggers Buzz

Correy, Jimmy Colunga and Norma Cretal, along with Oscar L. Cease, an inspector.

Signed by NASA's top administrator, Thomas Paine, the certificate states in part:

"In appreciation of dedicated service to the nation as a member of the team which has advanced the nation's capabilities in aeronautics and space . . . highlighted by man's first landing on the moon."

The Northrop P-530 Cobra



NORTHROP P-530 COBRA was introduced this week in the form of the first official photos of a full-scale mock-up. High performance air superiority fighter is designed to meet allied needs during the 1975-90 time period. Planned as a multi-national commercial venture, development and production of the P-530 are to be completed jointly by industries in participating nations.

Underwater 'Skunkworks'—Team Approach Spells Success for Mark 30 Program

Tucked away in an obscure corner of the Manufacturing facility at Ventura, a skilled team of technical, administrative and production personnel work side-by-side to produce the Mk 30 underwater target.

This unique arrangement which finds engineers' drafting tables less than 10 feet away from the production line is called a "skunkworks," a term widely used in industry. The term originated in a comic strip sequence several years ago.

Ventura's skunkworks, like its namesake at other aerospace firms, is a highly successful operation. And it is probably a key factor in the success of the young Mk 30 program.

Heading the operation of the Underwater Systems Project office is Orv Kyler. Mr. Kyler has a basic engineering-technician team of 15-20 Venturans which is augmented, periodically, by as many as 20 production workers.

The skunkworks concept on the Mk 30 began with the engineering phase of the program in 1969 and when the first production contract was received in mid-July of last year it was broadened to include production. The operation also moved from the Engineering Building to Manufacturing.

The result is "much higher efficiency in terms of both time and scheduling," Mr. Kyler says. Interdepartmental meetings are

eliminated along with lots of red tape and paperwork.

"If the production man working on the target has a question he just walks a few feet and asks the engineer," Mr. Kyler explains, "so a decision can be made quickly and work can go right on."

Other advantages are the spirit of teamwork and working toward a visible common goal. "The so-called 'deadwood' eliminates itself. The guys won't tolerate less than a 100 per cent effort," Mr. Kyler noted.

Typical comments from involved personnel back up Mr. Kyler's thoughts on the skunkworks.

(See **HIGHER**, page 6)

VENTURA REC CLUB ROUND-UP

Participants in Rec Club-sponsored bowling leagues in Thousand Oaks and Camarillo are rolling into the end of the season with several outstanding performances.

In the Camarillo league, Paul Potter's 278 is the best high handicap game (men) of the season while Mary Kowalski leads the ladies in that category with a 247.

Ray Mendoza has a 653 high handicap series on the line with Virginia Kahn's 647 the best mark in the same category for the distaff side.

Thousand Oaks bowling activity has been highlighted by a 694 scratch series for Don Ching. His handicap gives him a big 724 series and the best to date. Judy Eddy shot a 620 to lead the ladies in high handicap series.

High handicap game honors going into the season finale are held by Bob Lochemes (260) and Jeannine Childers (249).

Overton Caperton is the best pool shooter at the Ventura Division.

He won play-off matches against Dick Raney and Don Reynolds to win the Ventura Division Pocket Billiard Club Championship on Mar. 3. He finished the year with a 22-14 won-lost record.

Along with his trophy for the

championship is a new cue stick which he had been awarded earlier in the season for "Player of the Year" honors based on improvement, attendance and overall performance.

Pool shooters who wish to join Ventura players for the spring season which begins in April are urged to contact Commissioner Dick Raney at ext. 614. Games are played Thursday evenings at a local billiard parlor.

And newcomers needn't worry about a lack of experience, Mr. Raney noted. "The club uses a handicapping system which provides an equal chance for beginning and experienced players," he explained.



The youngsters showed their fathers and everyone else how to play golf Mar. 20 at the Ojai Country Club.

Teenagers Gary and Mark Peterson (they're not related) won the A and B Flights, respectively, with virtually the same scores of 65 as close to 80 Ventura Division Golf Clubbers turned out.

Included in the total number of players were 22 guests from the Aircraft Division Golf Club.

Gary Peterson, (whose father, John, is also a member), shot a gross 75 on the Ojai course. His net 65 was the best of the day. Sam Westfall was second there with a 67 and Bob Shaeffer fired

a 71 for third in the A Flight.

Mark Peterson (his father is Don, also a golfer), had a 65.40 net score to edge Roy Shelley's 65.46 in the second flight. Third was Wayne Merritt with a 69.

Dale Thompson had a 69 to win the C Flight and Harry Parker came in second with 70. Andy Tyszkiewicz was third at 73.

Winning the Ladies Flight was Lois Sheridan's 74. Right behind were Clara Curtis, 76, and Eileen Munro, 77.

Closest to the pin on the three-par holes were Dave Maher, Al Hahn and Bill Izakowitz with Ron Aitken hitting the longest drive of the day.



TOP POOL SHOOTER
Overton Caperton behind the 9-ball.



ARMSTRONG FAMILY AT USAF COMMISSIONING
Mr. and Mrs. John Armstrong, Sr., flank son and his wife, Judy.

Father Helps Design T-38 And Now Son Is Flying It

The young man was just eight years old and more interested in building models of ships and cars than anything else when his father was busy helping to design the Northrop T-38 Talon jet trainer.

Next month the tables change. The elder member of the duo will be just a proud father as the younger member steps forth to receive the wings of a USAF jet pilot, an accomplishment possible only after logging many hours of flight time in the T-38.

Lieutenant John Armstrong, Jr., USAF, will receive his wings in ceremonies at Randolph AFB, Tex. as John Armstrong, Sr., an

Aircraft Division mobile training designer in Product Support, and his wife look on.

The senior Armstrong has worked with Northrop for 15½ years and was a lead engineer in the design of the instrument panels and instrumentation systems for the T-38, both of which are essentially the same today as they were more than 10 years ago.

Lieutenant Armstrong, a graduate of Occidental, entered the USAF in January 1970 and moved to Randolph after 16 weeks of officer's training at Lackland AFB. Upon completion of his Undergraduate Pilot Training Program, he hopes to be assigned to larger aircraft, perhaps transports. Eventually, he would like to become a commercial pilot.

As for the T-38, Lt. Armstrong has nothing but praise. "It is a fine airplane, fast, responsive and a joy to fly. I'm proud of it, just as I am proud of the part my Dad played in making it possible," he says.

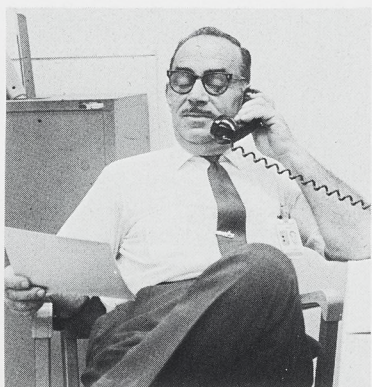
BRECKENRIDGE NAMED HEAD OF NSIA CHAPTER

New president of the Dayton (Ohio) Chapter of the National Security Industrial Association is Louis C. Breckenridge, Northrop Corporate manager of the Central Regional Office.

Mr. Breckenridge was elected to the top post last month at a meeting attended by approximately 200 representatives of industry and ranking personnel from Wright-Patterson AFB and the Defense Electronics Supply Center. Speaker for the occasion was Gen. Jack G. Merrell, commander of the Air Force Logistics Command.



THEN AND NOW
Private Costa, 1937, and Mr. Costa, 1971.



Costa Has His Version Of Amelia Earhart Story

Ted Costa is one of those who does not believe the current controversy about the mysterious disappearance of famed aviatrix Amelia Earhart.

Miss Earhart disappeared in the Pacific in 1937 while on a trans-Pacific flight. The controversy has centered around claims that she made a forced landing on a Japanese island and was executed as a spy.

"I just don't believe these stories," Mr. Costa, now with the Aircraft Division's Standard Tool Liaison. "I think her navigator miscalculated and she ran out of gas and crashed in the ocean."

Mr. Costa knew Miss Earhart and helped work on her plane during one of her earlier Pacific flights. At the time he was an Army Air Corps mechanic's helper stationed at Luke Field in Hawaii. Luke Field, now deactivated, was on Ford Island in Pearl Harbor.

"She was there about a week," Mr. Costa recalled, "and I got to know her pretty well. I helped service her plane and on several occasions taxied it to the service points."

His first impression of the famed aviatrix was shock, since Miss Earhart wore slacks when flying and he had never seen a woman in trousers before.

Systems Engineering And Analysis Approach Defines Hospital Needs

Northrop Services, Inc., will use the aerospace-proven systems engineering and analysis approach to define the requirements for the new Augustana Lutheran Hospital Medical Center in Chicago.

NSI, a unit of the Northrop Electro-Mechanical Division, was recently awarded a \$2.7 million cost-type contract to design the center. NSI will provide all the necessary effort for the analysis, design, architectural engineering and supervision of construction under a single contract. In addition NSI will provide installation and checkout of the complicated medical equipment.

An NSI spokesman said the contract proposes a new approach to the design of a technologically complicated edifice with systems engineering and analyses, rather than an architect, playing the dominant role. This approach is not unlike the missile site design, construction, integration and activation contracts which Northrop completed for the Titan and Snark missiles.

Northrop will provide an integrated systems engineering and architectural team physically located at the hospital to perform all functions, analyses, studies, plans, specifications and drawings required for a completely functional medical center.

In addition to the detailed review and analyses of the medical and other requirements of the new hospital, another Northrop innovation will be preparation of detailed specifications and design drawings. These will be an order of magnitude more precise and specific than those currently used for hospital construction. This will enable the construction contractor to develop a more accurate cost estimate prior to initiation of work.

The initial studies will be concerned with the proposed plot plan, the size of the medical center, the community requirements, and the resolution of these findings with the wishes of the hospital board of directors.

Planning Ahead

A 20-year master plan based on a projected environment will be developed to prevent the hospital from becoming obsolete in a short time.

Northrop Services, Inc., is headed by Frank W. Lynch, president, with specific responsibility for the Medical Systems Design Program delegated to NSI Vice President William J. Oakes. Robert Bareford is the project manager.

Mr. Oakes said that utilization of systems analyses techniques will permit design of the hospital primarily from a sound functional engineering design standpoint, rather than either building an architectural monument or basing the design solely upon a medical doctor's approach.

"Northrop and Northrop Services, Inc., are extremely pleased to be associated with this great humanitarian program," Mr. Oakes said. "The new medical center contract permits us to take part in helping solve one of the most pressing human problems of our modern society — providing safe, efficient medical care to more people at less cost."

Fischer Joins Northrop In PR-Advertising Post

Peter Fischer has joined Northrop as associate director of Public Relations and Advertising and will be concerned with media relations in the television and radio fields and with advertising.



Mr. Fischer

Mr. Fischer comes to Northrop from Liggett & Myers, Inc., where he was a sales promotion and product publicity director. Previously, he was manager of the television program promotion and publicity department at Young & Rubicam, Inc.

For 13 years Mr. Fischer served with Columbia Broadcasting System in assignments that included publicizing CBS television coverage of the Project Mercury Mission and the CBS Evening News.

Mr. Fischer accompanied the Presidential press party covering John F. Kennedy's 1963 European tour.

He attended Wilson College,

Chicago, and the City College of New York.

Palo Alto Firm Gets NTD Support

Morgan Information Systems, Inc., of Palo Alto is one of the first firms to receive financial support from Northrop Technology Development, a subsidiary devoted exclusively to investment in new technological ideas and developments.

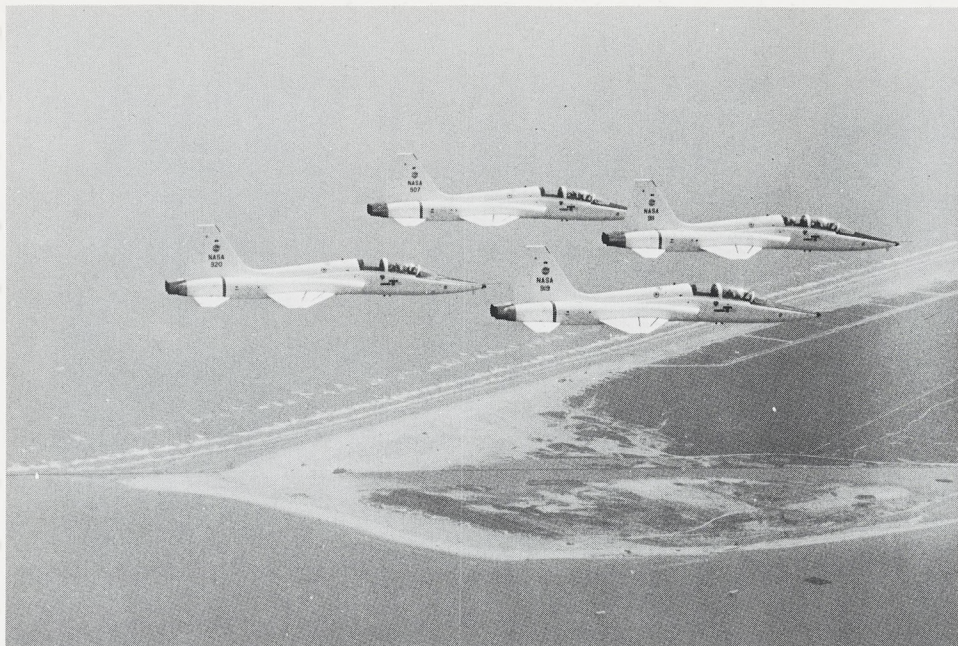
Headed by Theodore A. McCabe as president, the new Northrop subsidiary is geared to providing capital and technical assistance to new companies.

Morgan Information Systems is a manufacturer of microfilm storage and retrieval systems. Recently, the firm introduced its Autosearch Microfilm Terminals which uses microfilm produced either by a computer output microfilmer or by microfiche source document cameras. The Autosearch terminal can be operated as a "stand alone" device or under complete computer controls. It is designed for a wide variety of applications including insurance, banking, law enforcement, credit records, government operations, production control, personnel records and directories.

**IS IT NEWS?
CALL EXT. 4273
HAWTHORNE**



AMELIA EARHART AND PLANE IN HAWAII
Northrop's Ted Costa with fuel can perches atop wing.



NASA ASTRONAUTS USE T-38S TO MAINTAIN PROFICIENCY



FOUR T-38S HOLD TIGHT FORMATION ON TRAINING FLIGHT

Anniversary Time—First T-38 Joined ATC 10 Years Ago

Over the past decade the Northrop T-38 Talon trainer has been the supersonic mainstay of the USAF Air Training Command (ATC) aircraft inventory. This month marked an anniversary—their 10th together.

Gala ceremonies at Randolph AFB, Tex., marked the delivery of the first T-38 in March 1961.

As the band played and crowds cheered, Lt. Col. Arthur

W. Buck, T-38 project officer for ATC, flashed by in a low level pass, landed, and officially presented his aircraft to Lt. Gen. James E. Briggs, ATC commander. Looking on were such notables as Brig. Gen. Benjamin D. Foulis, USA-retired, one of the nation's earliest military pilots and Northrop President Thomas V. Jones.

An honor flight of aircraft,

ranging from a 1914 pusher to the latest military aircraft flew over to climax the ceremony.

The Northrop T-38 is the world's first supersonic aircraft designed specifically as a flight trainer.

In the late 1950s Northrop shared the USAF's concern over the growing cost and complexity of military jet aircraft. The T-38 represented a major design innovation that dramatically reversed this trend. Its key to success is Northrop's uncompromising design emphasis on simplicity—in concept, in detail design, in operation, and in maintenance.

Record Breaker

The T-38 has set USAF records for safety, high operational ready-rates, and low maintenance costs.

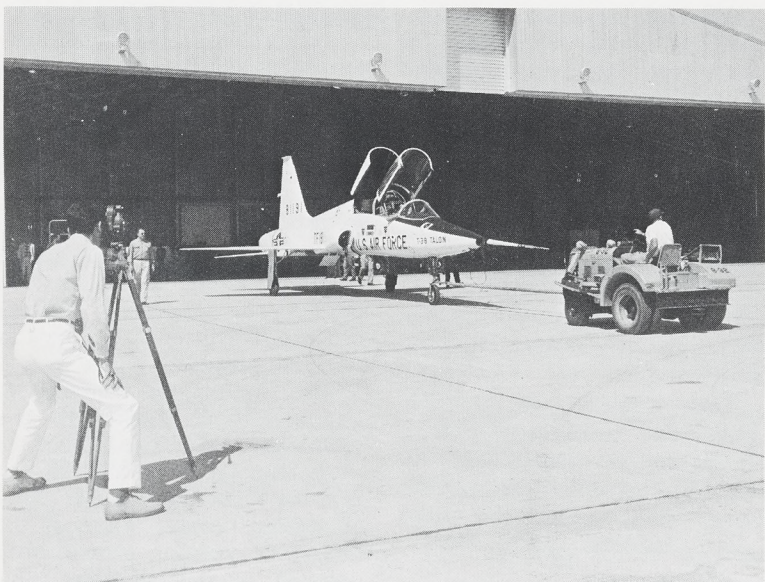
Since that day in March 1961, approximately 20,000 student pilots have trained in the Northrop T-38. They have logged more than 3.1 million flying hours.

To compile as many flying hours, a single aircraft would have had to take off 391 years

ago, in 1580. Such a plane would have flown over such great events in history as the execution of Mary, Queen of Scots, the defeat of the Spanish Armada and the landing of the Pilgrims at Plymouth. And if the pilot of that aircraft landed today, he would have 32 years of accrued leave due him.

More than 1,120 Northrop T-38s have been delivered.

In addition to the almost 1,000 T-38s in active service with the ATC, other T-38s are being used to train (in the United States) student pilots of the Air Force of the Federal Republic of Germany, as proficiency trainers for NASA astronauts, as part of the inventories of both the USAF and U.S. Navy Test Pilot Schools, and in selected special missions for other USAF units.



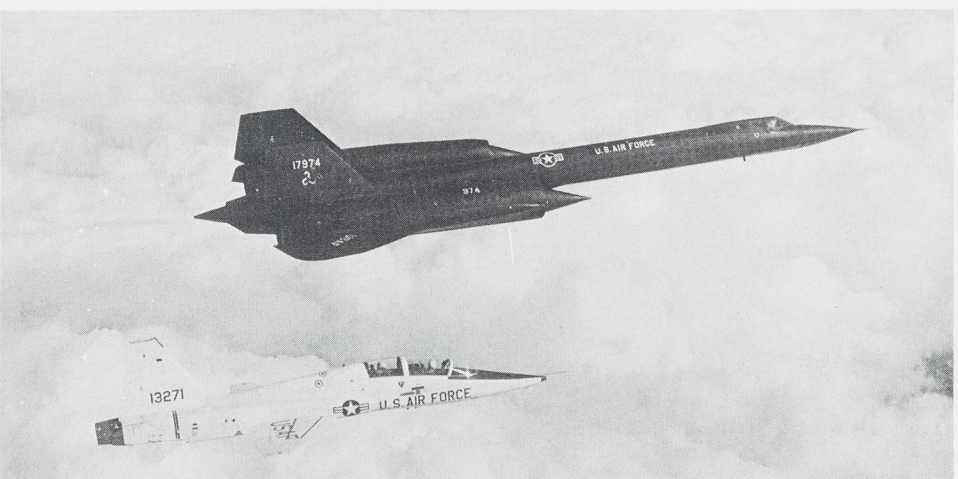
ROLL-OUT OF THE FIRST TALON BY NORTHROP



CROWDS GREET ATC'S FIRST TRAINER IN TEXAS



AIR FORCE PERSONNEL FIND THE NORTHROP T-38 AN EASY 'BIRD' TO MAINTAIN IN FLIGHT-READY STATUS



CHASE MISSION FOR THE T-38 WITH SR-71



TALONS WEATHER THE ELEMENTS YEAR-ROUND

LOUVIER DISCOVERS

Aussies May Say It Differently

In moving from one English-speaking country to another, the last thing a young man would expect to encounter is a language barrier.

But in Australia Jed Louvier found the accent and different meanings for words enough to make him revert to a note pad and pencil to communicate.

"All girls are sheilas; sweaters are jumpers; diapers are napkins; radios are trannys; biscuits are scones and cookies are biscuits. And when someone invites you to tea you had best be prepared for a full-scale meal, the main one of the day," Jed says.

Jed Louvier is 18 and the son of J. G. Louvier of the Aircraft Division. He came home to the Palos Verdes Peninsula in January after spending a year in Australia on an American Field Service International Scholarship.

Jed resided with members of the Robert A. Mellross family who operate a dairy farm about an hour's drive from Colack, Victoria. The family is engaged in breeding and raising dairy stock. "You can't imagine the shock

involved when a 'city slicker' is forced to roll out of the sack at 5:30 each morning to help milk 80 cows before breakfast and school," Jed says. "But it was wonderful and helped me decide to study veterinary medicine next fall at the University of California at Davis."

For young Louvier Australia held many other interesting changes. One was the wearing of "uniforms" by school groups. The other was the added responsibilities regarding school work and behavior noted in high school stu-

dents. Still another was the formal attitude of students to instructors. And yet another was adopting the favorite sport of Australian Rules Football, something like soccer or speedball. It is nothing like American football.

"Before I left I learned the American Field Service motto. After a year there I really know what it means and feel it has much to offer everyone," Jed said. It says: "Walk together, talk together, O ye peoples of the earth, then and only then will ye have peace."

DEADLINE IS AT HAND FOR ENTERING CREDIT UNION'S BIG SLOGAN CONTEST

More than 300 entries have been received in the Northrop Credit Union's contest to find a catchy slogan applicable to its many services.

The contest runs through March 31 and is open to all employees, except Credit Union staff members and elected or appointed officers.

The winning slogan will earn

for its author a handsome digital clock/AM-FM radio set.

Employees may submit as many entries as they like, but each must be on a separate sheet of paper which also contains the originator's name, division affiliation, man number, in-plant mailing and telephone number. Entries should be sent to: Northrop Credit Union, 1292/5 at Hawthorne.



MOTHER OF BIKE-RACING TEENAGERS
Lorraine LaFrenaye views Chris, above and Paul in action.

LaFrenaye Boys Filling The House With Trophies

Although they have been competitively racing motorcycles for just a year, the two teenage sons of the Ventura Division's Lorraine LaFrenaye have amassed 22 trophies.

The boys are Paul, 15, a racer for six months and Chris, 18, who has been racing a year. Their motorcycles are 100 and 125 cc Harley Davidsons which is no surprise because their father, Gene, is a Harley Davidson salesman.

Their victories have come in moto-cross races. Moto-cross is similar to the steeplechase: the two mile course has lots of twists, turns, mud, jumps and short

straight stretches.

And, although the young drivers have each been involved in mishaps — "Chris once took out 33 feet of railing but he wasn't hurt, thank goodness," said Mrs. LaFrenaye—their mother thinks motorcycle racing is safer than football.

"At least on the race course nobody's trying to knock you down," she explained. "Every driver is out to finish the race as safely as possible."

Mrs. LaFrenaye, secretary to Lauren Persons, admits she gets "probably more excited about the races than the boys do." She enjoys the races and has met many interesting people. "Most of the racers are working people, businessmen, as well as many teenagers."

Branching Out

This first year has been one of "getting into it and finding out if you enjoy it," she said. The young men have raced at Bay Mare (near Camarillo), Anzac Park in Palmdale and well-known Ascot Park in Gardena.

"Their experience has increased their skill and enthusiasm for the sport," Mrs. LaFrenaye said.

Not only do they plan to branch out to more Southern California tracks now, but a motorcycle dealer in Thousand Oaks has expressed an interest in sponsoring the eldest, Chris.

Sponsorship comes in the form of providing the racer a fully equipped bike as well as the special riding gear. The clothing, literally from head to toe, is expensive.

"Right now Gene's company sponsors Chris and we sponsor Paul," Mrs. LaFrenaye said. Getting the bike in top racing form the night before the race frequently involves lots of midnight oil for the boys and their father.

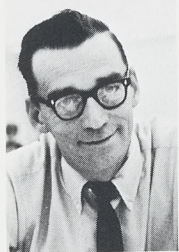
"But it's a lot of fun and we have a good time," she added. Mrs. LaFrenaye rides motorcycles, too, but not competitively. "Gene and I used to go all over on motorcycles," she said, "but not anymore. There's too much traffic and it's too dangerous. The boys don't ride on the streets either."



LIFE ON AN AUSTRALIAN DAIRY FARM IS DIFFERENT
Jed Louvier feeds calf and pets colt with Kenneth Mellross, his host.



WE ASKED THEM—Do You Favor Changing Holidays to Get More Long Weekends?



Jerry Falvey, financial analyst, Electro-Mechanical:

I certainly like the long weekends, but I sort of resent changing the national heritage. Washington's birthday should be on the 22nd of February. I wouldn't want to celebrate my birthday a week early—they come too soon as it is.



Marian Grundy, budget analyst, Electro-Mechanical:

I like the three-day weekend, but it just doesn't seem right to change the birthday of someone like George Washington as important as he was to our country. Changing some of the holidays was all right, but this one should not have been touched.

Don Holford, Materiel administrator, Electronics:

I'm all for it. I think it makes it a lot easier to plan ahead for extended outings and enables people to make solid reservations.



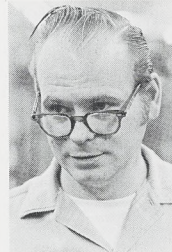
Neil Day, senior engineer, Electronics:

Yes. A longer weekend gives people the time to do extra things they normally would not be able to do on a two-day vacation.



Maxine Leonard, shipping coordinator, Ventura:

I think it's very beneficial to most people. They get more time with their families and get to do things they otherwise couldn't do. It sort of puts us in the four-day week category, too.



Alan Gale, T-38 seat assembler, Ventura:

I think it's great. It gives people more leisure time to pursue hobbies and spend more time with their families.

Vincent Acosta, Fab Control, Aircraft:

I don't care for changing the holidays around myself. But, I feel that if it will help others take advantage of the longer time off then it is okay.



Ann Castiliano, telephone operator, Aircraft:

I don't see much use in changing the holidays around in this way. After all we've gone along this many years without the change. I suppose a lot of people will take advantage of them, but it doesn't mean anything to me.



Knell Family Aids Seals In Hockey Title Quest

When the Santa Monica Seals won the 1970-71 Greater Los Angeles Minor Hockey Association's Pee Wee Blue Division title there were many reasons for celebrations in the Ben Knell household.

Mr. Knell, Aircraft Division senior safety engineer, is the coach of the Seals. His wife, Lucile, of Spares Estimating, is the team statistician. Their son, Jon, 12, was one of the leagues leading scorers, recording 20 goals and 31 assists. Joe, 13, played with the Santa Monica Bantams hockey team, another division title winner.

The Seals began the season last October with just four expe-

rienced players, yet closed it in a blaze of glory by winning their last 21 games, enough to earn a play-off berth. The Southwestern team of Norwalk, then Van Nuys fell before the Seals for the division title.

"Ice hockey is a fine sport for developing youngsters," Mr. Knell said. "And there are teams for players from the ages of four years through 20 years in the Greater Los Angeles area."

No experience is necessary for youngsters entering the sport. Even the fine art of ice skating is taught as a part of youth spring and summer hockey clinics by veterans such as Mr. Knell. This paves the way for league action which begins in October.

"Ice skating is not a sport normally associated with Southern California, but each year the number of youngsters turning out to play increases," Mr. Knell said. "And we always have room for more. I will be glad to refer parents to teams or volunteer leaders in their area. Just call me at ext. 1067 at the Aircraft Division."

DISNEYLAND

Northrop Personnel Activities ticket outlets this week received tickets for Northrop Night at Disneyland set for May 22. They sell for \$4 each and include parking and unlimited use of facilities from 8:30 p.m. to 1:30 a.m.

Classified

Classified ad service is provided free of charge to all Northrop personnel. Ads for agencies, commercial enterprises and private businesses are not accepted. The Northrop News reserves the right to edit or omit ads. Ads are limited to two items per person per issue; each category to be submitted on separate form. Deadline is noon Wednesday, one week before publication.

Automobiles For Sale

Thunderbird, 1957, auto., porthole top, \$1,500. 213-375-1685. A
Pontiac, 1966 Bonneville 2-dr. h/top, p/b, p/s, auto., \$1,000. 213-321-6146. A
Falcon, 1961 auto. trans., needs tuneup & muffler, \$50. 213-645-8004. A
Sunbeam Imp, 1964, r/h, 4-spd. stick, 2-dr., \$300. 213-756-1812. A
Cadillac, 1964, 64,500 mi., orig. owner, 2-dr. Coupe deVille completely equipped, extras, \$1,275. 213-477-3426. A
Pickup, 1955 Chev., 1/2-ton, '59 283 hi-perf. eng., rebilt. 1 1/2 yrs., Hydromatic, canvas camper, \$800. 213-672-6923. A
Motor Coach, Beachwood, 24', many extras, a/c, aux. pwr., sleeps 4, 4,700 mi., \$8,000. 213-378-1561. A
Pontiac, 1962 Catalina, \$350. 213-675-9659. A
Cadillac, 1968 Coupe deVille, leather int., many extras, \$3,200. 213-320-4243. A
Volkswagen, 1968 Sunroof, r/h, extras, \$1,100. 714-541-0151. A
Fiat, 1970, 850 Sport Spider, in warranty, 9,000 mi., \$1,795. 714-535-0946. A
Pontiac, 1965 GTO, 4-spd., mag whls., air-shocks, \$795. 714-521-1516. A
LeMans, 1964, convt., auto., p/s, air, \$750. 213-837-4707. A
Volvo, 1965 PI800S, o/drive, new paint, \$1,800. 213-325-5705. A
Sunbeam Tiger, 1966, V-8, hi-perf. 289 just rebilt., equipped for racing, \$1,700. 213-865-0197. A
Oldsmobile, 1963 cpe., air, full power, recent o/haul, \$600. 213-421-0900. A
Volkswagen, 1969, radio, \$1,200. 213-325-8170, 213-378-0603. A
Mustang, 1968, only 1,800 miles, min. bid \$1,595; El Camino, 1970, 14,000 miles, min. bid \$3,045. Credit Union ext. 1117. A
T-Bird, 1964, full power, a/c, \$750. 213-423-1363. A
Ford, 1965 Club wagon, 8-pass., big eng., \$995. 213-320-2002. A
Autoette, 3 wheeled, elec., w/batteries, 6, 12, 18, 24 V. charger, \$325. 213-372-4907. A
Pickup, 1963 Chev. 3/4-ton, rebilt. eng., ext. bumper, \$795. 213-329-4402. A
Ford, 1964, 2-dr., 289 eng., p/s, auto. trans., \$300. 213-279-2474. A
Rambler, 1963 Classic, r/h, new tires & batt., \$275. 213-379-3030. A
Rambler, 1965, 4-dr. American 440, auto. trans., r/h, recently installed new uphol., batt. & brakes, \$675. 213-347-4087. A
T-Bird, 1964, auto., full power, major tune-up/trans. o/haul, \$650. 213-865-5084. A
Volkswagen, 1967, 1969 motor, stereo, \$950. 213-327-7989. A

Automobiles For Sale

Station Wagon, 1958 Chevrolet, \$175. 213-324-5867. A
Falcon, 1966, 4-dr., 6-cyl., stick shift, \$550. 714-639-2487. A
Chevrolet, 1965 Impala, new bks., shocks, exhaust sys., p/s, auto., \$850. 213-323-0877, 213-370-6400. A
Triumph, 1965 Spitfire, \$650. 213-370-0851. A
Ford, 1965 Falcon, 6-cyl., new trans., \$500 or take over \$34.51 mo. pymt. 213-676-7060. A
Oldsmobile, 1968 Cutlass Supreme, auto. trans., 350 eng., a/c, \$2,095. 213-888-8890. A

Household Items For Sale

Canopy Bed, 3/4, white, complete, \$35, other items. 213-256-0544. B
Picture, 2'2"x4'4" walnut framed desert scene, red & orange & browns, \$10. 213-676-3050. B
Bed, 9-dwr. dresser w/mirror, end tables, \$200. 714-778-0135. B
Crib, Babyline, \$17.50. 213-679-6982. B
Secretary Desk, period, dark wood, \$35, other items. 213-256-0544. B
Dinette Set, 5-pc., blonde, \$25; stove, gas, Wedgewood, chrome top, \$50. 213-776-1613. B
Couch, 8', & love seat, gold, \$60; coffee table, Mediterranean, \$40. 213-371-2692. B
Stove, Hot Point, white, elec., 2 ovens, deep well, \$75; step end & coffee tables, walnut, \$50. 213-644-1581. B
Desk, kneehole, maple finish, 42"x22"x30" high, 8 drws., \$30. 213-675-2005. B
Beds, twin, maple, 2, mattress & springs, \$40. 213-671-1303. B
Lounge Chairs, 2 imported Swedish, zippered reversible gold nylon covered foam cushions, \$50 pr. 213-320-3529. B
Crib, adjustable, w/mattress, blue on white, hi-chair, booster seat, 25 blankets, sheets, \$45 or sell sep. 213-376-4831. B

Miscellaneous For Sale

Motorcycle, 1966 Harley M-50 w/trailkit, \$75. 213-833-7306. C
Baseball Shoes, Spotbult, size 9 1/2, used once, \$15. 213-326-5731. C
Acreage, 4.9, California City near Galileo Hill, low interest, \$86 mo. pymts., \$3,000 dn., approx. bal., \$8,500. 213-775-1987. C
Water Softener, Eversoft, used 18 mos., lifetime guarantee, \$400. 213-326-8429. C
Wet Suit, men's, full length, med. size, \$25. 213-632-2642. C
Acreage, 10 acres, near Medford, Ore., 80-gal. a minute well, \$13,000. Box 601. C
Messenger Unit, Johnson CB, \$65. 213-534-5287. C
House, 4-bdrm., on R-4 corner lot, living & dining rm., laundry rm., all elec., 2 bks. from grade school, located in Redondo Beach, \$31,500. 213-542-4914. C
Piano, upright, \$210; guitar, Acoustic-Gibson, \$100. 213-675-8278. C
Wheels, 2, for Volkswagen 1500 w/tires, \$3 a pc. or \$5 for both. 213-377-3858. C
Drill Press, 6" planer, 6" jointer, band & table saw, sander, metal lathe, \$300 or sell sep. 213-831-5304. C
House, 3-bdrm., 1 1/4 bath, lge. carpeted patio, cpts., dps., Hollypark, close to Northrop, \$26,750. 213-755-7339. C
House, 8 yrs. old, 2-bdrm., bath, lge. family rm., bitins, forced air heating, 60'x200' lot, 2-car gar., \$25,000. 213-791-3390. C

Is The Fox Chasing The Hounds?



NO SCIENCE FICTION movie this, but an actual flight of a group of Northrop F-5 tactical fighters photographed on a cross-country training mission. Ron McGaffin, Aircraft Division photographer, snapped this photo from the rear seat of an F-5B as a group of pilots training at Williams AFB, Ariz., flew toward Nellis AFB, Nev. Bulb-like white area at right top of picture is the reflection of the pilot's helmet in the front seat of the F-5 in the windshield. Mr. McGaffin reports this flight actually contained 16 aircraft, although all are not visible here.

Miscellaneous For Sale

Pups, Irish setter, AKC reg. champ. stock, pet, all shots, \$150. 213-372-4907. C
Mobile Home, 1963 Panorama by Pan American, 10x50, 1 bdrm., bath, air cooled, skirts, awnings, Harbor City, \$3,800. 213-325-2476. C
Motorcycle, 1969 Yamaha 100, street legal, oil injection, extras, \$250. 213-645-6211. C
Snow Tires, 2, 8.50x14, used approx. 500 mi., \$20. 213-324-3250. C
Motorcycle, 1970 Honda 175, K-3, \$450. 213-370-7904. C
Utility Trailer, 1970 Sears 2-whl., 4x5x2', all steel box w/hinged steel top, \$200. 213-323-7171. C
Travel Trailer, 16' Shasta, sleeps 6, 4-burner stove & oven, 4" floor insulation, \$500. 213-347-6964. C
Saddle Tanks, 2 20-gal. for Chev. or GMC pickup, \$50. Box 602. C
Transit Box, collapsible, airline approved, for cat or small dog, \$5. 213-377-3806. C
Guitar Amplifier, elec., 125 w., 2 channels, reverb., tremolo, piggy back style, many extras, \$125. 213-324-5449. C
Aquariums, all Glo-lite equipped, 3-gal. \$2, 4 5-gal. \$3 ea., 10-gal. \$5, 10-gal. w/stand, & some fish, \$7. 213-675-0788. C
Bicycle, 26" boy's, 3-spd., \$10. 213-377-5322. C
Travel Trailer, 15' Shasta, sleeps 5, \$475. 213-699-8173. C
Piano, Starr, upright, black, \$75. 213-676-7060. C
Pup, German shepherd, female, 8 mos. old, AKC, \$75. 213-644-6629. C
Mobile Home, 10x55 w/expando, 5 yrs. old, 1-bdrm., in adult park, Escondido, \$5,000. 213-378-0501. C
Shopsmith, Mark 5, extra attachments, \$100. 213-378-3212. C
Boat, 14' Wizard, new Sears 40 h.p. motor, trailer & ski, \$500. 213-679-4400, 213-675-3830. C
Motorcycle, 1966 250 cc Yamaha Big Bear Scrambler, new eng., \$225; stereo console, 9', AM-FM, 10-spkr., \$150. 213-644-9394. C

Wanted to Buy

Trains, Lionel, used, model 773 or 2343 Streamliner, reasonable. 714-522-5909. D
Bicycle, boy's 10-spd. Schwinn or equivalent, must be in very good condition. 213-378-2790. D
Bicycles, Derailleur, 10-spd., lightweight, man's. 213-374-9944. D
Bunk Beds, complete set, must be sturdy, w/good mattresses & springs. 213-779-7956. D
Firearms, antique, any condition. Box 603. D

Free (To Be Given Away)

Dog, German shepherd, 13 mos. old, female. 213-372-8124. F
Dog, German shepherd, 13 mos. old, female. mixed cocker & terrier. 714-526-5421. F

Rentals Offered

Cabin, Big Bear City, 1 yr. old, 2-bdrm., 1-bath, \$90 wk., \$45 w/end. 213-320-6486.

Rides and Riders

Rides Wanted

7 a.m. — 3:42 p.m.

Edinger & Euclid, Fountain Valley. Alan Hawthorth, Torrance ext. 79-548, 213-644-1819.

Plane ride from Hemet or nearest airport to Hawthorne. Can change hours to 8 a.m.-4:42 p.m. Julie Karl, Aircraft ext. 1131, 213-375-0136, 714-679-1397.

Rides Offered

7 a.m. — 3:42 p.m.

Edinger & Euclid, Fountain Valley. Alan Hawthorth, Torrance ext. 79-548, 213-644-1819.

Rentals Offered

Cabin, Lake Arrowhead, 3-bdrm., 2 baths, f/place, completely furn., \$125 wk., \$50 w/end. 213-831-1745. G

House, 3-bdrm., lge. closets, air, f/place, bitins, gar. opener, soft water, Carson, \$250 mo. 213-320-4243. G

Cabin, Moonridge, Big Bear Lake, 3-bdrm., 2 baths, f/place, completely furn., family only, \$125 wk., \$50 w/end. 213-326-7232. G

Cabins, Lake Gregory & Crestline, sleeps 6, \$25 w/end, \$60 wk. 213-821-8150. G

Cabin, Green Valley Lake, \$65 wk., \$45 w/end. 213-320-2002. G

House, Bass Lake, \$150 wk., \$45 w/end. 213-374-3702. G

Cottage, Ocean Bch., San Diego, near Mission Bay, make reservations now, \$75 wk. 714-826-2007. G

House, 2-bdrm., unfurn., Manhattan Beach tree section, f/place, dble. gar., \$230 mo. 213-376-3790. G

Apt, 1-bdrm., unfurn. or furn., carport, bitins, cpts., dps., air cond., 20 min. from Northrop, \$120-\$140 mo. 213-391-7781. G

Apt, 2-bdrm., 2 baths, cpts., dps., bitins, washing facilities, older children, \$165 mo. 213-672-5798. G

Personals

I wish to thank my many friends & fellow workers for the cards & calls received during my recent illness. S. W. SPOONER. L

Sincere thanks to all my friends for the help & encouragement during my illness. O. F. STADLER. L

I wish to express my deepest appreciation to all my friends at Northrop for their kindness & expressions of sympathy at the loss of my husband, Tom. MARY DRAGOS. L

Words could not express my feeling of humbleness, pleasure & heartfelt thanks to my friends at Northrop for my recent retirement party. ROBERT J. "BOB" LEHMAN. L

NORTHROP NEWS

Vol. 29

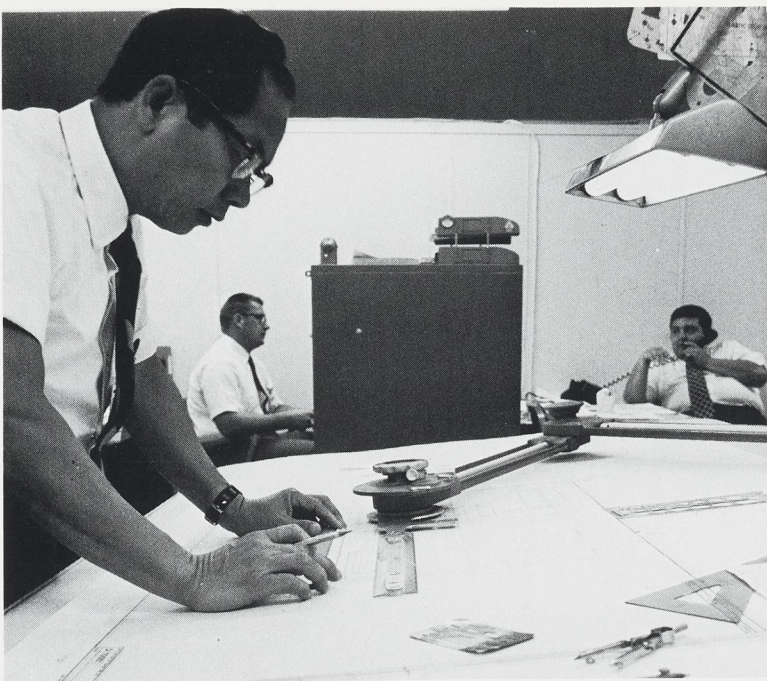
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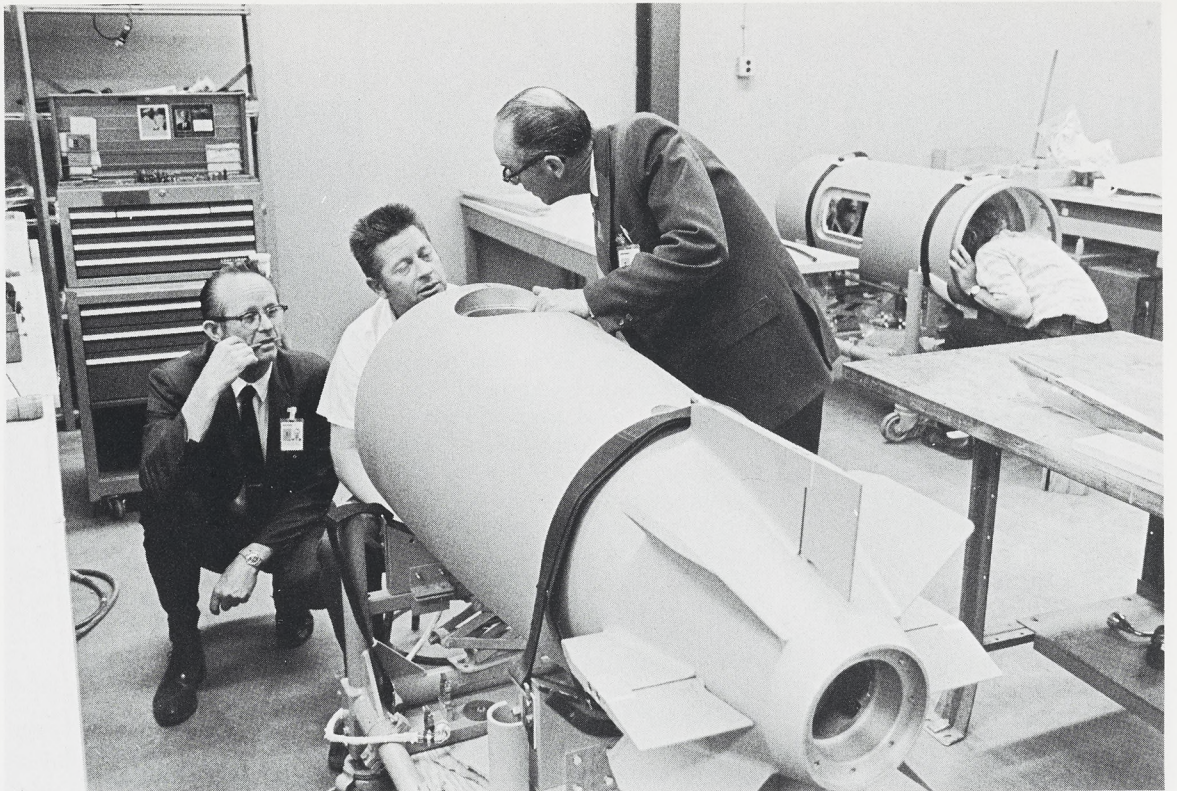
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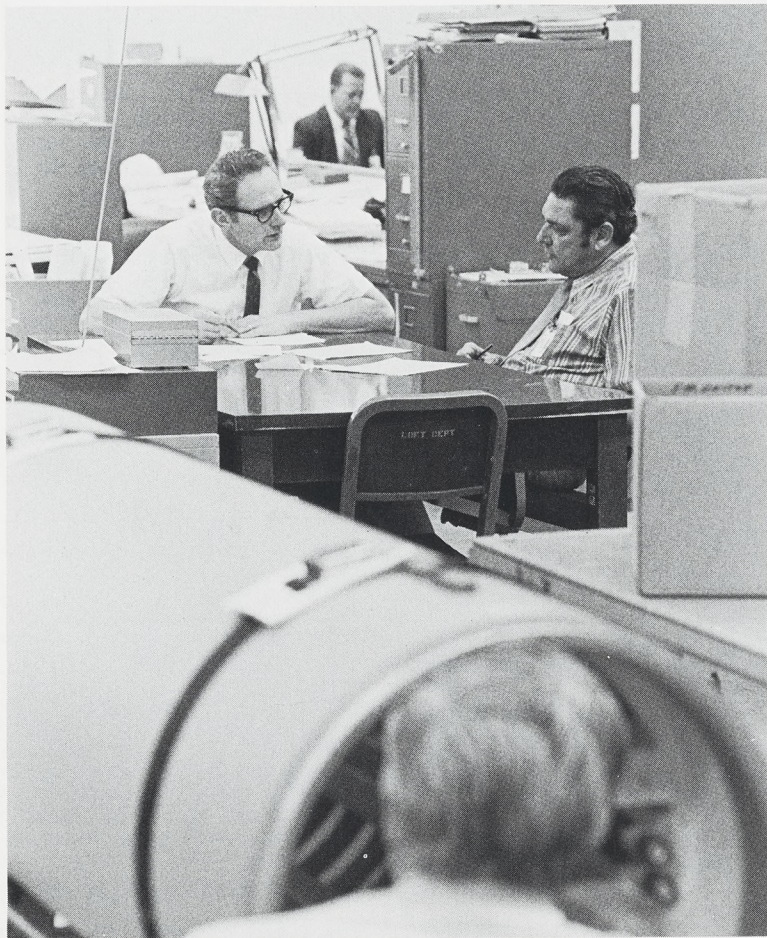
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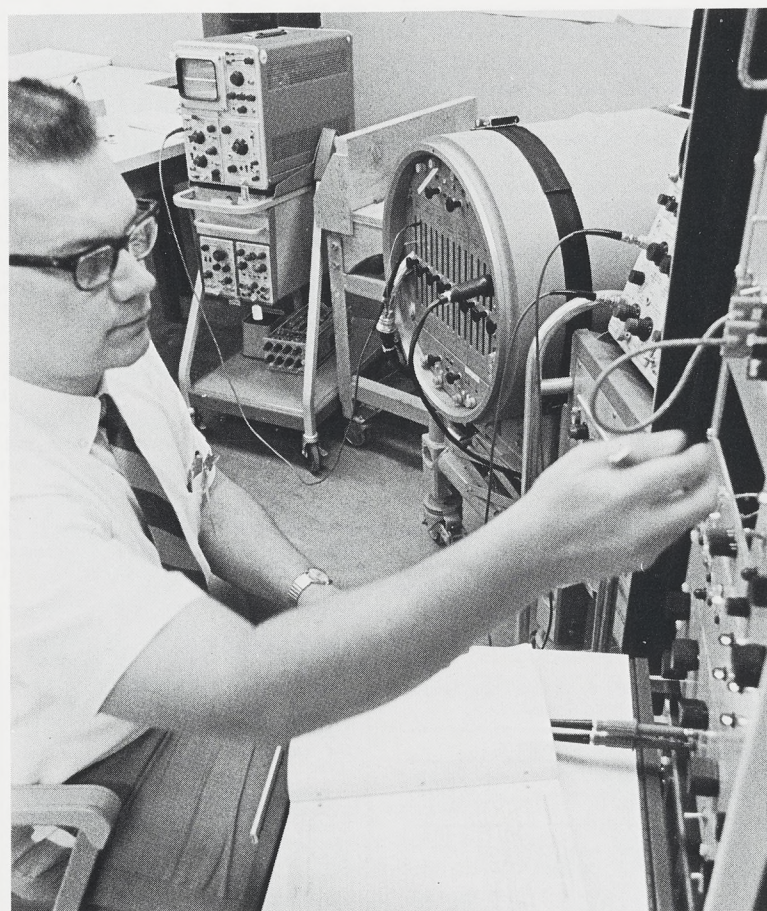
TECHNICAL EXPERTISE
Terry Chin at drafting board, rear, Rodger Sorenson and Lou Florence.



GETTING THEIR HEADS TOGETHER
Blair Chapman, Ralph Burkman and Tony Fortuna discuss tail section work.



PLANNING NEXT TO PRODUCTION
Bob Harris and Earl Clark discuss program next to production line.



TEST EQUIPMENT IS CLOSE BY
Rodger Sorenson tests Mk 30's acoustical subsystem in skunkworks.

Higher Efficiency, Fast Communication Are Advantages of 'Skunkworks' Operation

(Continued from page 1)

"This is the only way to go in a competitive program," said Joe Palys, a specialist in support equipment. "Everyone is more responsible this way, the work is more intense," added Reese Briggs, a structural designer.

Bob Tracy, writing the operational manuals for the customer, cited the advantages of close communications. "I've always preferred projectized to functionalized arrangements," he said.

Other Engineering personnel in the skunkworks are Lou Florence, logistics; Rodger Sorenson, acoustics and manuals; Larry Kirsch, electrical systems; Les Cole, guidance and control; Dick Hobeck, electrical design; and Terry Chin, mechanical design.

Contracts Administrator Forrest Godfrey is in the skunkworks with his secretary, Jean Grow. Mr. Kyler's secretary is Marian Leppert.

Important Contributors

Earl Clark, manufacturing project manager, is assisted full-time by Chuck Courtemanche, Carl Emerich, Jack Murphy, Gary Porter, Ray Townson, Bill Keating, Helen Wright, Richard Martin, Ralph Burkman, Steve Wrubel and Sam Mannino. Keeping an eye on quality are Tony Fortuna, Bob Baltz and Karl Stoy. Bob Pepper is the procurement man, and George Reardon and Ray Yates are technicians. Also, Max Thieme, Scheduling; Marv Bullock, Estimating; Ted Bennett, Budgets.

Working outside of the skunkworks, but contributing significantly, are personnel in the Model Shop and Electrical Assembly.

Also, an engineering team working on product improvements is led by Tom Noble, acting project manager in Mr. Kyler's absence. The product improvers include Ben Beirne, Hap Haszard, Jack Baker, Glenn Richardson, John Haberek, Dick Richards, Ray Janis, Rick Trudell and Jim Rummell.

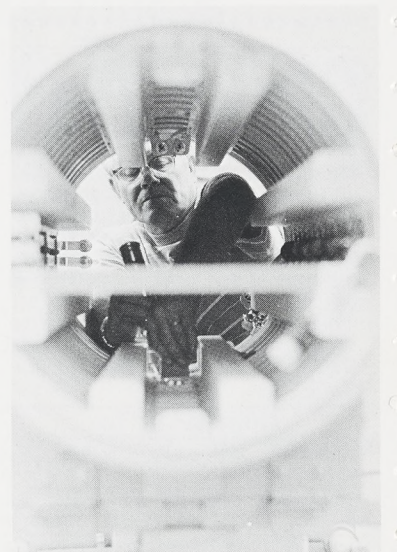
Finally, Lloyd Simpson, tech-

nician representative to the Navy at BARSTUR, where the Mk 30 is operating on a Pacific Missile Range facility, also reports to Mr. Kyler.

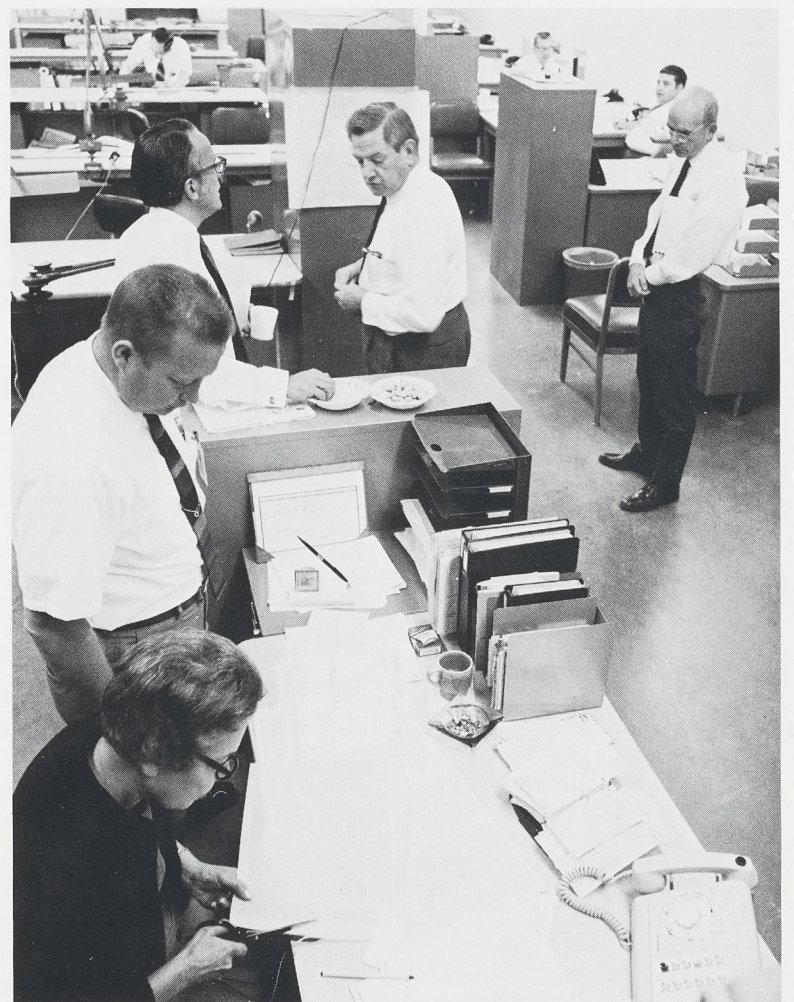
The successful skunkworks formula can be applied to any program in engineering and pre-production phases, Mr. Kyler said, "and works best when there is a small physical volume of men and production."

When does it end? "It's not needed in large production," Mr. Kyler explained. "When you get into hard tooling most of the engineering problems are ironed out as you roll into full-scale, long term production."

So while it would be difficult to say farewell to the skunkworks, Mk 30 personnel are looking forward to the rewards of increased production contracts.



TIGHT QUARTERS
Steve Wrubel works on battery section.



INFORMAL MEETINGS ARE TYPICAL
Marian Leppert, Orv Kyler at desk, rear, Jim Rummell, Joe Palys, Tom Noble.

NORTHROP NEWS

PHOTOS BY
ROBERT THORNTON

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COMPARING NOTES WITH GENERAL JAMES

From left, George Douglas, senior vice-president; Dick Tupper, Management Club vice president; Welko Gasich. (Northrop News Photo)

Gen. James Cites Unity, Courage In Speech Before Management Club

Unity, conviction and courage will strengthen America and her people.

That was the message from Air Force Brig. Gen. Daniel (Chappie) James when he addressed nearly 150 members and guests of the Ventura Division Management Club at Los Robles Inn on March 26.

The highest ranking black man in the Air Force cited race and inequality as the causes of division in the country.

He urged his listeners to speak out for what they believe in and be counted. "If your feelings aren't known then the militant and bigot counts you in his corner," he said.

"People like us, who believe in our country, need to be heard here and overseas. You must let others know where you stand and that this is the greatest country in the world."

Urging minorities to work within the system, he cited his

own upbringing in Florida. He noted the progress there and in the military.

Prejudice is still evident though. It is "the biggest paradox in this country. But there isn't any nation now that can sacrifice any percentage of its nation's manpower to bigotry and hate," he said.

"Unity in spirit and intent of the constitution" is the greatest weapon in America's arsenal, he said. "This is our nation and she's going to stand. And if she's got ills I'll hold her hand. But nobody is going to take it in the meantime."

This spirit of unity, if demonstrated abroad, could speed the end of the Vietnam War. If it is not demonstrated, "the Communists will just wait us out."

Hand-in-hand with the war situation is the dilemma of the American prisoners of war. He noted the government's unflagging interest in the plight of the

POWs and said, "I can guarantee we're going to do anything we have to to get our men home."

Gen. James, deputy assistant secretary of defense for public affairs, received a standing ovation as he was introduced by George Grogan and at the close of his speech when he received a desk set with a simulated moon rock from Dick Tupper, club vice president.

Among the other guests were George Douglas, former Ventura general manager and now Corporate senior vice president—Administration; James E. Ware, president of Northrop Architectural Systems; and Barry Miller, West Coast editor of Aviation Week magazine.

Earlier in the day General James and his aide, Navy Captain Walter Ellis, toured the Ventura Division with Northrop President Thomas V. Jones and division officials.

Apollo 15 Flight Crew Includes Ventura Visitor

When Astronaut Alfred M. Worden personally presented Snoopy pins to key Apollo personnel at Ventura two years ago he kidded about probably being assigned to Apollo 19 or 20.

Well, Astronaut Worden's waiting days are over.

He has been assigned to pilot the command module of Apollo 15. Launch date for the record 12-day mission is July 26.

It will be Air Force Major Worden's first space flight.

His co-crewmembers for the moon trip will be Air Force Col. David R. Scott, veteran of the Gemini 8 and Apollo 9 flights, and Air Force Lt. Col. James B. Irwin, lunar module pilot.

Astronaut Scott will be mission commander. Astronaut Irwin, as in Astronaut Worden's case, is a space novice.

While Astronaut Worden orbits the moon his two companions will land on the lunar surface July 30 in a northern plain cut by a large gorge that runs along the base of some of the moon's highest mountains.

Called Hadley-Apennine, the site of the fourth U.S. manned lunar landing is named for the nearby Apennine Mountains and the meandering Hadley Rille.



Astronaut Worden

GODFREY RUNNING FOR SCHOOL BOARD

Forrest Godfrey, contracts administrator in the Mk 30 project, is a candidate for the board of trustees of the Pleasant Valley (Elementary) School District in the April 20 election.

Mr. Godfrey is an eight-year resident of Camarillo where the district is located. A past-president of the Camarillo Jaycees, he also has been active in many other civic activities.

half a mile wide, 600 feet deep, and 60 miles long.

Astronauts Scott and Irwin will use the lunar roving vehicle, to be carried for the first time on Apollo 15, to transport them to pre-determined exploration points. In the course of their scientific objectives they will also walk on the moon.

Major Worden and Col. Scott are West Point graduates and Col. Irwin graduated from the Naval Academy. Both Col. Irwin and Major Worden joined NASA in 1966. Col. Scott has been with NASA since 1963.

Colburn Picks Up \$186 to Set Pace For Suggesters

Gene Colburn, of the Autoclave unit, received two cash awards totaling \$186 in the Ventura Division's Suggestion Awards Program last month.

Mr. Colburn earned \$118 for an idea to revamp and reorganize storeroom space and utilization and picked up another \$68 for a modification of the overhead track in the 747 soft tooling area.

Jerry Chotenovsky also received two awards for \$15 and \$10, respectively, for suggesting a movable honeycomb cart and a lamination sheet-priority and note section idea.

Mr. Chotenovsky and Mike Tracy, who received \$67 for an idea of storing honeycomb according to contour, report to Jim Rundgren, manager of Production Control.

Nate Phillips earned a \$36 bonus for elimination of an unneeded form and Paul Barbakow got a \$10 award. These two report to Paul Potter, also manager of Production Control, and Mr. Rundgren and Mr. Potter presented their checks at the same time.

Others earning awards were Dona Johnson, \$11, and Fred Berumen, Jim Kearney, Norm Ruhl and Ed Kephart, \$10 apiece.

TOP PARACHUTE MAN

Ed Ewing Retires, Ends 24-Year Career

The inventor of the Ringsail parachute which was the forerunner of the Earth Landing Systems for the Mercury, Gemini and Apollo space capsules has retired from the Ventura Division.

Ed Ewing closed more than 24 years of Radioplane and Ventura Division experience April 1. His paradyamics expertise earned many NASA and technical honors in parachute and deceleration systems technology.



Mr. Ewing

His abiding interest in paradyamics began when he joined the company in January 1947 and was part of a team chosen

to improve recovery systems for target drones.

While contributing in this field he helped devise a parachute system for the Q-4 supersonic target. That new parachute was the Ringsail or annular ring chute. He subsequently was awarded a patent for the Ringsail parachute and later models were used by U.S. astronauts.

On his way to other patents—for Rotafoil parachute, mechanical release system, Glidesail dirigible parachute, and Skirt Jet landing rocket system—Mr. Ewing also did some personal experimentation.

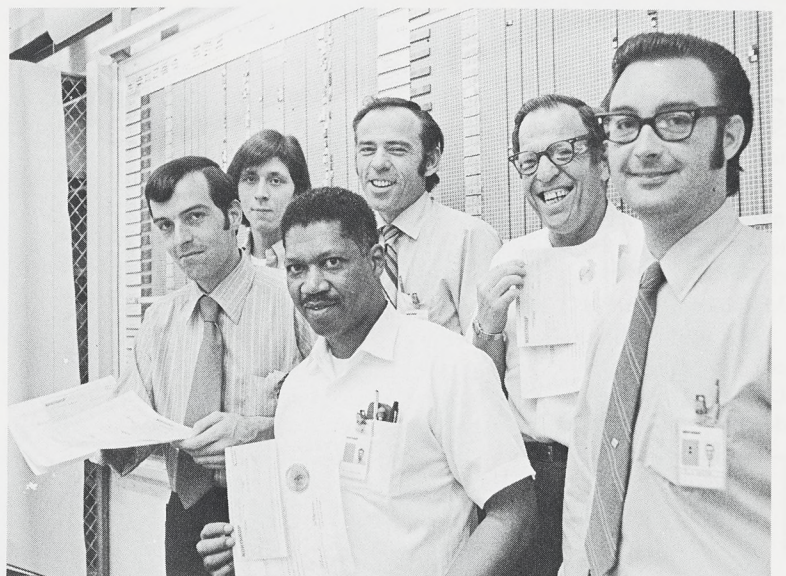
Although his parachute jumping experience had been limited to watching others, Mr. Ewing personally tested one of his major designs by jumping from an airplane at 4,000 feet over the airstrip at Lake Elsinore.

Bruised from the landing (he credited a safety helmet with preventing major injury), Mr. Ewing walked away from the test with the smile of a man who knows his device works.

His technical papers and articles are widely read and respected. Latest in this area was a 5,000-word monograph for NASA on deployable aerodynamic deceleration systems for future spacecraft design.

What does a man with such a high level of technical ability plan to do in his retirement? "Well, I guess you could call it 'active retirement' because I'll be busy," he told the Northrop News.

Mr. Ewing is working from his Thousand Oaks home as an engineering consultant in commercial product design and development.



PRODUCTION CONTROL SUGGESTERS

Mike Tracy, left, Jerry Chotenovsky, Nate Phillips, Jim Rundgren, Paul Barbakow, Paul Potter. Managers Rundgren and Potter distributed checks.

F-5 in NATO Service



TALKING TACTICS—Brig. Gen. Vecdi Ozgul, center, assistant chief of staff for operations of AIRSOUTH, discusses characteristics of Northrop F-5 with Turkish War College graduates assigned to this NATO command in Naples, Italy. AIRSOUTH is NATO's air command for Southern Europe. It provides air defense of Italy, Greece and Turkey, including the Mediterranean Sea and parts of the Black Sea. Northrop F-5s are major part of this air defense organization.

Williams Will Attend MIT As Sloan Fellow

W. D. Williams, Corporate financial administrator, has been named a 1971-72 Alfred P. Sloan Fellow to study advanced management techniques at Massachusetts Institute of Technology.

Mr. Williams will begin his 12-month study program in June.



He will join 45 other Sloan Fellows, each a young executive from industry, government and the medical and health services in the class of 1972, a group representing the greatest diversity and variety in background, education and work experience in the history of the program.

This program, started in 1931, is the nation's oldest executive development program. It leads to a master of science degree in management.

Looking Ahead

Mr. Williams is the fourth company participant in the MIT-Sloan program which is one part of Northrop's program to prepare managers for greater responsibilities.

Robert W. Young, Northrop's first MIT-Sloan Fellow is now manager of Quality Control at the Aircraft Division. Donald H. White, the second MIT-Sloan graduate, is manager of Financial Operations for the Aircraft Division. Allen G. Taie, of the Electronics Division's Navigation department, will complete his MIT-Sloan studies shortly and return to Northrop.

Each Sloan Fellow is nominated by his organization and selected for participation by officials of the Sloan School of Management at MIT.

Mr. Williams was recommended for the program by Donald L. Lewis, Corporate vice president — Financial Planning and

Control, and James D. Willson, Corporate senior vice president—Finance and Treasurer.

Joining Northrop Space Laboratories in 1963, Mr. Williams served as an executive assistant for two years before transferring to the Aircraft Division for the next four years. At the Aircraft Division, he performed various finance functions, including T-38 and F-5 financial negotiations and ultimately held responsibility as Finance manager of the Boeing programs group. He moved to the Corporate office 18 months ago.

Mr. Williams graduated from Ohio University in 1951 with a bachelor of science degree and from the Harvard University Graduate School of Business with an MBA in 1955.

Charles Walker Joins Northrop

Charles E. Walker, formerly supervisor of the Ventura County Airport, has joined Northrop Corporation as an airport operations specialist in the Aircraft Systems Marketing and Planning organization.



In his new assignment, Mr. Walker will be responsible for pursuing the corporation's interest in designing, modifying and building complete airport systems throughout the world.

He also will be an advisor on airport systems contracts presently held by Northrop in Micronesia, Taiwan and Puerto Rico. He will work from Northrop's Corporate office.

Mr. Walker became supervisor of the Ventura Airport in 1967 following his retirement as a colonel from the U.S. Air Force.

Corporate Laboratories Complete Detailed Study of Lunar Materials

The Materials Sciences Laboratory of Northrop Corporate Laboratories has completed a detailed study of lunar material returned to earth by the Apollo 12 lunar excursion.

G. L. Connell, NCL's principal investigator for the study, reported findings of the program in a report titled "Auger Electron Spectroscopy of Lunar Materials" at an Apollo 12 Lunar Science Conference in Houston.



Mr. Connell

Objectives of the study, carried out for the National Aeronautics and Space Administration, were:

- To examine the feasibility of applying electron spectroscopy to highly complex lunar rock;

- To determine the optimum requirements as to the size, quality and preparatory conditions of the lunar samples and to suggest appropriate modifications of the electron spectrometer essential to future, more precise analysis of lunar specimens;

- To compare the results of the spectroscopic analysis with those obtained on the same material by X-ray fluorescence and scanning electron microscopy using the non-dispersive (energy dispersive) X-ray analyzer; and
- To attempt to define surface mineralogy and other related aspects of the specimens.

The study was unique in that NCL was the only participating unit to apply the analytical technique of Auger electron spectroscopy to lunar rock.

Basically, this technique involves bombarding the sample, which is placed inside an ultra-

high vacuum chamber, with an electron beam of moderate energy and analyzing the emitted electrons according to their energies. Among the emitted electrons will be Auger electrons which result from the de-excitation process of an atom that has been ionized. Their energies are characteristic of the elements from which they come and therefore can be used, much in the same way as X-rays, to provide an elemental analysis.

In addition, Auger electron spectroscopy has the advantage of providing an analysis of only the first few atomic layers on a surface and can detect all elements, except hydrogen and heli-

um. Its sensitivity is high enough to detect concentrations in the range of 100 parts per million and the method is nondestructive.

During his studies utilizing this method, Mr. Connell found the following elements in the lunar samples: aluminum, silicon, potassium, calcium, titanium, oxygen and iron, all materials similar to those found on earth.

R. F. Schneidmiller also examined the samples, using the scanning electron microscope to observe topographical features as well as elemental analysis using a non-dispersive X-ray detector.

X-ray and fluorescence and geological interpretation were done by P. Kraatz.

Merit Scholarships Go To Six Sons, Daughters

National Merit Scholarships for 1971 will go to three sons and three daughters of Northrop Corporation employees.

The 1971 merit scholars are: Jay C. Dauro, son of Vincent A. Dauro, of the Electro-Mechanical Division's Huntsville (Alabama) facility; Winifred A. Merritt, the daughter of William G. Merritt, of the Electronics Division's Precision Products Department; James A. Musslewhite, son of Robert C. Musslewhite, of the Electro-Mechanical Division; Marie I. Shively, daughter of Marian E. Shively, of Hallicrafters; Scott D. Stephens, son of Douglas H. Stephens, of the Aircraft Division; and Wendy J. Willson, daughter of James D. Willson, Corporate office.

Each scholar will receive a four-year study grant.

While it provides necessary funds to support the Merit Schol-

arship Program, Northrop plays no role in the selection of recipients other than to specify that scholarships go to the sons and daughters of current Northrop employees.

Students desiring to enter the program take the National Merit Scholarship Qualifying Test given in high schools across the nation during their junior year. A second test in their senior year confirms their initial performance.

Each participant must be endorsed by his or her school. Skilled evaluators determine scholarship winners.

Since it began supporting the National Merit Scholarship Program, Northrop has presented 69 scholarships to sons and daughters of employees. Of these, more than 30 are held by students who will be actively pursuing studies leading to degrees during the coming fall school term.

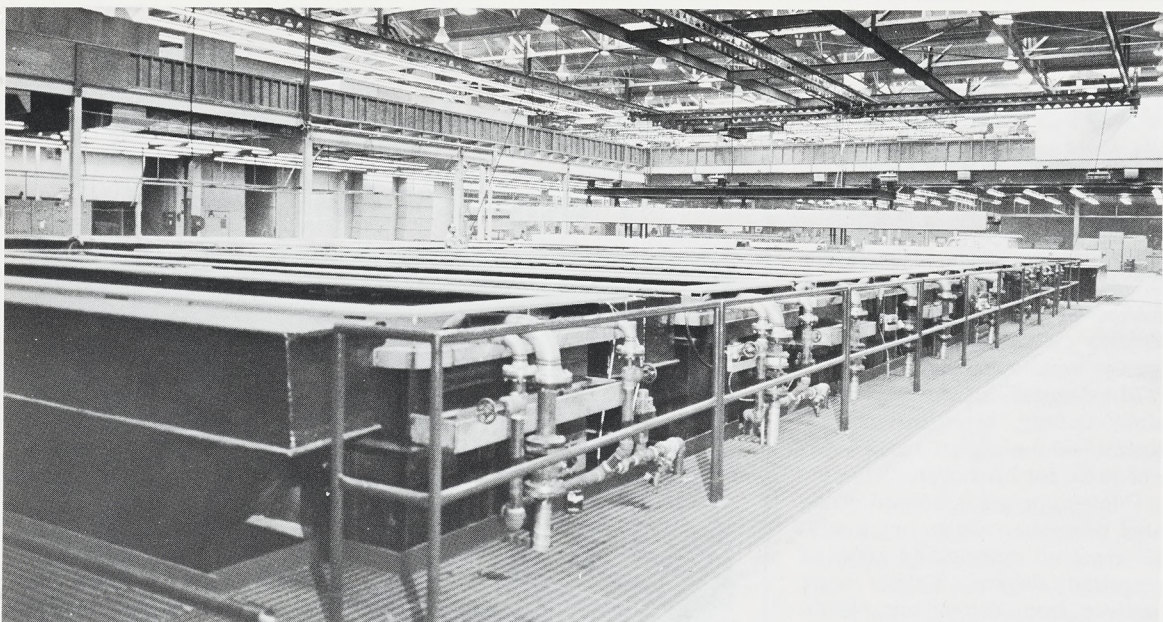
Philippine Air Force F-5s Steal The Show



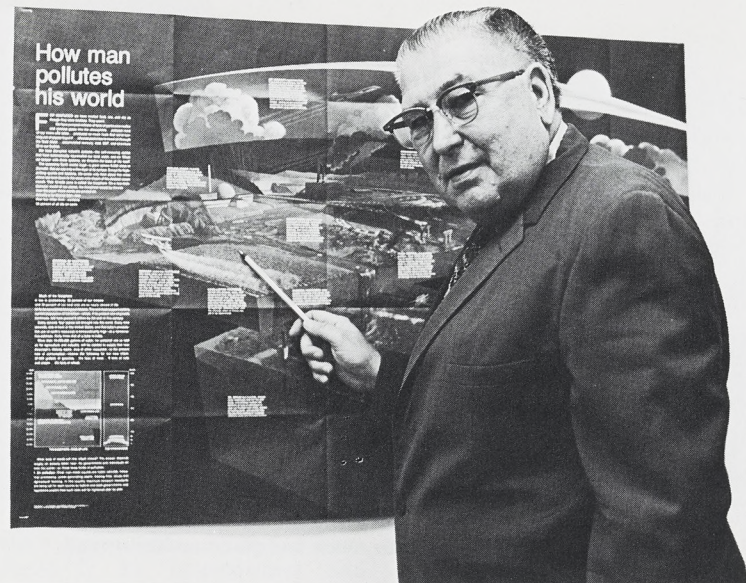
CROWD PLEASERS—Northrop F-5 aircraft of the Philippine Air Force's Aerial Demonstration Team, the Blue Diamonds, are lined up during the Aviation Week airshow at Manila International Airport. At left are members of the team and their wing commander, Brig. Gen. Jose L. Rancudo, center. Flying in tight formation, Blue Diamonds execute precise aerobatic maneuvers to the delight of their audiences.

Know Your Industry

At the end of 1970 the aircraft fleets of United States scheduled airlines included 2,343 aircraft with 235 more on order. Of the aircraft now in service, 2,108 are jets, 282 are turboprops and 43 are piston-powered airplanes. Of the 235 aircraft on order, all but a handful are wide-bodied 747s, L-1011s and DC-10s.



INTRICATE VENTING SYSTEM
Vents rim chemical processing tanks, pull off noxious vapors.



CONCERNED ABOUT THE ENVIRONMENT
Aircraft Division Plant Engineer Gene Musk fights pollution daily.

Anti-Pollution Role Well Known at Aircraft

Oldest Northrop Division Works on Basic Creed:
'If It Smokes, You See It Or Smell It, Control It'

(Editor's Note: This is the fourth in a series of articles dealing with Northrop's ongoing efforts at preservation of the environment in day-to-day operations.)

Northrop's Aircraft Division has been taking steps to control pollution and assure a balanced ecology since before the Los Angeles County Air Pollution Control District was formed in 1945. "Northrop had installed many control devices before regulations were passed into law," explains Plant Engineer Gene Musk.

"This was done because of our interest in personnel safety and welfare, and in recognition of our vital and vested interest in community welfare." California and Los Angeles County, incidentally, lead the nation in tight anti-pollution controls.

Mr. Musk, who has won national honors for his efforts in fighting pollution at Northrop, looks at the situation realistically.

He readily acknowledges that Northrop generates pollutants. "And if they were uncontrolled they would be a hazard to the area," he said.

"But our main thrust, which is also along the lines of federal and state mandates, is to eliminate detrimental pollutants in our air, water, and on the land." He emphasizes the word "detrimental."

Describing the possible pollutants which are generated by the more than one square mile of the Aircraft Division's multi-faceted

operations would be a hefty task. Keeping an eye on them all, which Mr. Musk does, is still a bigger job.

Air pollution receives a great deal of attention.

"Los Angeles and adjoining counties have the most rigid air pollution controls found in the nation," Mr. Musk explained. For example, the Aircraft Division has 249 valid air pollution permits controlling various types of equipment.

"Our design criteria is 'If it smokes, if you see it or if you smell it, control it,'" he noted. Among the equipment in this category are items such as boilers, paint booths, degreasers, ovens, exhaust systems, dust collecting devices, autoclaves and vacuum pumps.

Strict control of this equipment is aimed, primarily, at reducing smog.

"Smog is not just created by automobiles," Mr. Musk explained. "It is a complex mixture of smoke, dust, fumes, gases and aerosols which, in the presence of sunlight, generate the opacity found over the area."

Paint vapors contribute to smog. So to protect the employees and the environment, special spray booths are used to trap the vapors for proper disposal. The latest version is virtually fully automated.

Other areas which Mr. Musk and his staff are concerned with include:

Water Pollution and/or Liquid

Wastes. Those which are not clean enough to go into the local sewage system are hauled away by a licensed contractor to dump sites. "Records of each transaction are kept by us, the contractor, and the County Sanitation District," Mr. Musk said.

Solid Wastes. Salvable material which cannot be reused is sold to the highest bidder or hauled away by contractors to dump sites controlled by Los Angeles City or County.

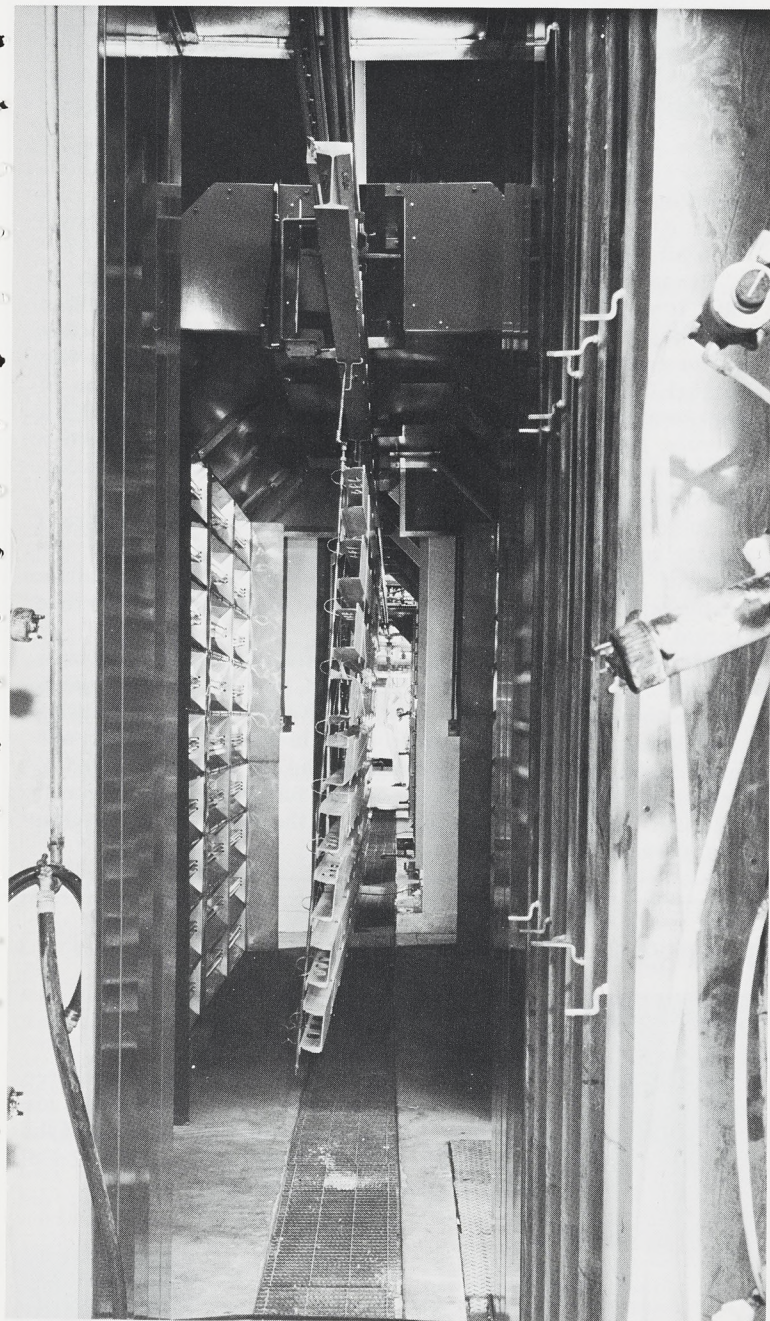
Auto and Vehicular Emissions. Standard gasoline in many vehicles is being replaced by butane which reduces smog generating emissions. Some new equipment is electric-powered and this year the division will test electric-powered pickup trucks on plant grounds.

Noise. An extensive noise safety program includes standards in line with recommended medical standards which are more stringent than state or federal laws.

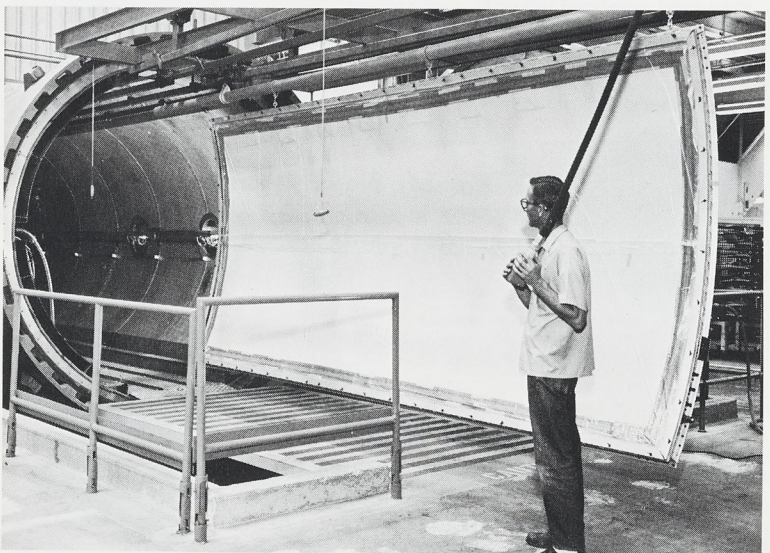
What more can be done in the pollution battle? "Primarily, it's a matter of needing control systems which have yet to be designed," Mr. Musk said. The industry is waiting for the anti-pollution state-of-the-art to catch up.

The aerospace industry is one of the cleanest big manufacturers in the country. It will be even cleaner when the level of technology is increased.

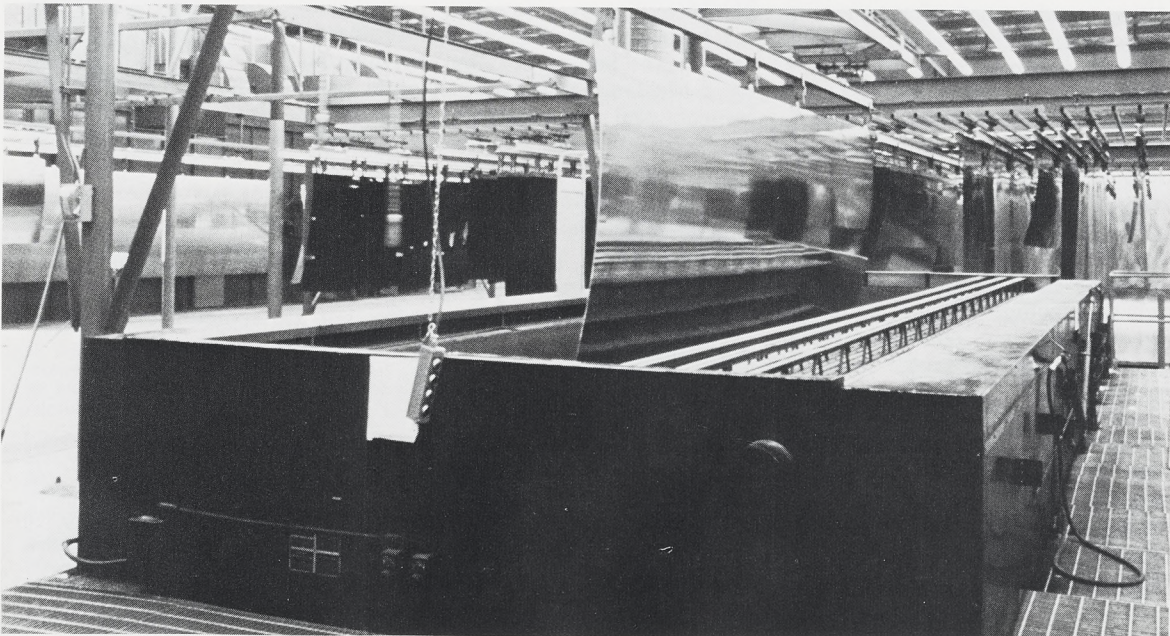
(Next: The Electro-Mechanical Division maintains its own style of vigilance in Orange County.)



AUTOMATION HELPS, TOO
Freshly painted parts are checked with fluorescent lights.



SPECIAL SYSTEM FOR AUTOCLAVE
What looks like a big oven has intricate vent control system.



DEGREASER FOLLOWS APCD RULES
Solvent vapors for 747 skin at Torrance facility are controlled.



GENIEL RAWLINGS COLLECTS CLOCKS
She adjusts 80-year-old mantel clock her grandmother owned.

Clock Collector Likes Sound of Their Ticking

Geniel Rawlings, secretary, Contracts, Electro-Mechanical Division, has lots of "time on her hands." She collects clocks—and her collection ranges from common alarm clocks to mantel antiques.

Mrs. Rawlings started her collection 20 years ago when she inherited a mantel clock that had belonged to her grandmother. Although the clock is now more than 80 years old, it still keeps perfect time. Mrs. Rawlings' grandmother received it as a wedding present in 1890.

The clock was cleaned when Mrs. Rawlings got it in 1950, but no repairs have ever been necessary. The clock is an Ansonia, a large decorative model intended to serve both as a timekeeper and as a decoration on fireplace mantles.

Although she loved the clock and especially liked to hear it tick, she did not get caught in the

collecting fever until she received another old clock that had belonged to her husband's mother. After this she began collecting and now has 10 different types and is looking for more. She finds most of them by going to antique shows and by getting tips from other collectors. Right now she is looking for a Westminster chime clock.



HE WON CREDIT UNION SLOGAN CONTEST
Glenn Thornton and Mary Delaney flank winner Herb Dugger and prize.

Herb Dugger Wins Slogan Competition

"We care how you fare."

This slogan, penned by Herb Dugger, was judged best of 400 entries in the Northrop Credit Union's contest to pick a slogan for use in its operations.

Mr. Dugger, an Aircraft Division contract specifications engineer, won a digital clock/AM-FM radio for his slogan.

Contest judges admitted being hard pressed to single out a winner from an outstanding array of suggested slogans. Entries were received from throughout Northrop facilities in the Southland.

Mr. Dugger is no stranger to the slogan or pen-a-line game. He says it is one of his hobbies, along with other types of games. He and his wife collaborate on ideas from time to time. Mr. Dugger came up with 15 suggestions for the Credit Union contest, well above the average, but short of the entries submitted by two or three other Northrop employees.

In the past Mr. and Mrs. Dugger have won their share of prizes, awards and cash in slogan events. Tops for them was a \$1,450 award.

Fire Truck Fascinates Young Heart Surgery Patient From Italy



The journey—from a small village in northern Italy to the driver's seat of a Northrop fire truck—has been a long and difficult one, but the expression on the face of the youngster indicates it was well worthwhile. Renato Gaudagnin, 7, is shown with his mother, Rita, and Northrop's Louis Baldini.

Renato grew up in the village of Feltre, Italy, population 6,000. It was found he had a congenital heart defect, a condition requiring major surgery if he was to live. In Italy, few doctors performed the delicate operation, and travel to America was financially out. Msgr. Rocco Antonioli told his congregation of the family's plight and parishioners began building a fund for Renato. Every worker in the village's factory pledged a portion of his pay. When the fund reached 500,000 lire (about \$2,500), Mrs. Gaudagnin and Renato came to Los Angeles.

Surgery was performed at UCLA Medical Center where a doctor told Mrs. Gaudagnin they worked "only for love, not money." The Anthony Scardenzan family of Inglewood, natives of the region, offered their home for use during the recuperative period.

Mr. Baldini, who migrated to the United States from the same general area when he was two years old, met the family through his mother-in-law who was also a native of Feltre. In chatting with Renato, Mr. Baldini learned of his interest in fire trucks and aircraft. So just before the youngster and his mother planned to return to Italy, he arranged for a visit for them to the Aircraft Division. And the obvious highlight of the visit was captured in the photograph above.

TIME TO CHANGE

Northrop Corporation employees will get "with it" later this month in making the annual swing from Standard Time to Daylight Saving Time.

All clocks are to be set ahead one hour during the final weekend of the month. And Northrop work shifts will begin an hour earlier, starting Monday, April 26.

Disneyland Nite Tickets on Sale At All Facilities

Once each year Northrop families and friends from throughout the Southland look forward to getting together again for an evening of fun and relaxation.

The occasion is NRC Nite At Disneyland.

The eighth annual Disneyland visit for Northrop families is just around the corner — May 22 from 8:30 p.m. to 1:30 a.m.

Northrop ticket outlets are now offering passports for this big fun event. They sell for \$4 each and include parking, admission to Disneyland and unlimited use of all facilities, except shooting galleries.

Tickets must be obtained through Northrop facilities, since none will be sold at the gates. And the event is open only to holders of Northrop-issued tickets. The general public will not be admitted.

Disneyland will offer a wide variety of special shows, dance bands and entertainment, in addition to regular rides.

WE ASKED THEM—Do You Like The Trend to Compact Cars?



Renee Simmons, secretary, Aircraft:

I think compact cars are very good, especially for a second car. They give good gas mileage and are easy to park. I'm going to buy one for my daughter's graduation present, but I'll keep driving a big one myself.

Constance Fondry, electrical assembler, Electro-Mechanical:

I certainly like the way that compact cars are easy on the pocketbook, but for myself I settled on a Mustang, which is sort of in between the compact and the larger car.



David A. Franco, machinist, Electronics:

I own one, but I don't necessarily like it. They are nice to drive, but are sometimes dangerous because of their small size.

Don Wallace, pricing analyst, Ventura:

Yes, for many reasons. It certainly helps the traffic problem; reduced gas consumption reduces the smog problem and by avoiding high-priced big cars the consumer can spend his money on more worthwhile things.



LeRoy Coon, designer, Aircraft:

I think it is a good idea and should have been done a long time ago as far as American cars are concerned. I don't think we would have had the influx of foreign cars that we have today if Detroit had seen the light earlier.

Don L. Myers, inspector, Electro-Mechanical:

They are not for me. I think that compact cars are too small and too dangerous. I prefer the standard size car myself.



E. L. Kennedy, property coordinator, Electronics:

I prefer a heavier car, myself. I guess when you get older you want comfort more than economy.

Dee Anderson, timekeeper, Ventura:

No. I think bigger cars are safer on the road and give both the driver and the passenger a good sense of security. I've never owned a small car.



Classified

Classified ad service is provided free of charge to all Northrop personnel. Ads for agencies, commercial enterprises and private businesses are not accepted. The Northrop News reserves the right to edit or omit ads. Ads are limited to two items per person per issue; each category to be submitted on separate form. Deadline is noon Wednesday, one week before publication.

Automobiles For Sale

- Chevrolet, 1968 Impala, 4-dr., r/h, fact. air, 80,000 mi., \$1,600. 213-641-9469. A
- Fiat Spider, 1969 Gold 850, convt., low mileage, new radial tires, \$1,399. 213-377-7670. A
- Rambler, 1965, 4-dr. Classic 660 sedan, 6 cyl., p/s, \$650. 213-375-7038. A
- GTO, 1965, American mags, 389 cu. in., positraction rear tires, new clutch, \$850. 714-539-1386. A
- Scout, 1963, 4-wheel dr., positraction rear end, r/h, \$895. 213-376-2713. A
- Toyota, 1969 Corona, 4-dr. sport sedan, auto., r/h, \$1,595. 714-828-2857. A
- Mustang, 1969 Fastback w/scoop, 302 V-8, auto., fact. air, p/s, p/disc brakes, \$2,300. 714-879-8724. A
- TR-3 sports car, rebilt. eng., new top & paint, \$800. 714-776-2709. A
- Super Van, 1969 Ford, V-8, auto., r/h, \$1,900; Falcon, 1964 Sprint, Cobra eng., headers, 4-spd., r/h, mags, \$700. 213-379-3796. A
- Station Wagon, 1964 Chrysler Newport, 9-pass., auto., p/s, p/b, \$400. 714-892-7174. A
- Oldsmobile, 1964 Cutlass, auto., p/s, p/b, tach., 55,000 mi., \$695. 213-377-2500. A
- T-Bird, 1964, full power, a/c, new tires & batt., \$750. 213-423-1363. A
- Corvette, 1968, 35,000 mi., 327 cu. in., auto., AM-FM radio, a/c, \$2,500. 213-679-2610. A
- Station Wagon, 1967 Ford, 4-dr., factory fully equipped, \$1,575. 213-531-7337. A
- Station Wagon, 1963 Rambler 550 Cross Country, 6-cyl., new eng., \$450. 213-676-7060. A
- Galaxie, 1966, 61,000 mi., min. bid \$745; Charger, 1968, 72,000 mi., min. bid \$1,195. Credit Union ext. 1117. A
- Volkswagen, 1966 fastback 1600 TL, \$800. 213-276-4384. A
- Van, 1962 Ford Econoline, rebilt. eng., \$600. 213-370-3821. A
- Corvaire, 1961 Monza cpe., 110 h.p., 4-spd. trans., radio, fact. service manuals, 66,000 mi., eng. recently o/hauled, \$250. 213-541-1625. A
- Datsun 2000, 1968 SRL 311 sports car, 3 tops, \$1,500. 714-962-1143. A
- Mustang, 1967 fastback, a/c, r/h, p/s, other extras, 50,000 mi., \$1,700. 213-836-7426. A
- Pontiac, 1968 GTO, 2-dr. h/top, fact. air, power d/brakes, Turbohydramatic trans., AM-FM radio, rear air shocks, console, coolant recovery sys., \$2,000. 714-833-1538. A
- Mustang, 1965, auto. trans., p/s, r/h, a/c, \$875. Box 701. A
- Rambler 660, 1964, 51,000 mi., \$350. 213-676-4771. A

Household Items For Sale

- Crib, mattress, high chair, \$30. 213-326-3905. B
- Dryer, Frigidaire, \$50. 213-323-6745. B
- Dining Room Set, maple finish, 4 wing back chairs, table extends to 64x30, \$25. 213-329-9589. B
- Washer, auto., top loader, white, Sears Kenmore Model 8440, \$60. 213-644-6164. B
- Refrigerator, Philco, lge. top freezer, \$65; bedroom set, blonde, dble. bed, springs, mattress, chest of drws., \$40. 213-645-1613. B
- Step End Tables, mahogany, coffee table, round, formica tops, \$30. 213-644-1581. B
- Fireplace Logs, gas, \$25. 213-834-9604. B
- Dryer, Sears Kenmore 1970, elec., used 2 mos., \$85. 213-645-3906. B
- Water Softener, \$100. 213-379-3300. B
- Storage Chest, roll-away under bed, hinged lid, approx. 8'x3'x5', \$7.50. 213-376-4831. B
- Refrigerator-Freezer, frost free, 16.9 cu. ft. Coldspot, 8 yrs. old, \$95. 213-670-2819. B
- Bed, white antique, 4-poster, canope, dble., w/matching 2-dwr. night stand, \$50. 213-823-0192, 213-677-8797. B

Miscellaneous For Sale

- Lawnmower, power, King-O-Lawn hvy. duty, all chain drive, \$75. 714-897-5874. C
- Pups, poodle, AKC, 1 white, 1 apricot, \$50 ea. 213-866-4104. C
- Go-Cart, minus engine, \$15; guitar, elec. amplifier & lge. spkrs., \$75. 213-377-4623. C
- Tent, 10'x12', Sears, dble. side room, outside poles, 3 cots, \$135. 213-371-2664. C
- Acreeage, 2 1/2 acres fronting on new Adelanto pvt. airport, M-1, \$75 dn., \$75 mo., \$7,500. 213-378-1026. C
- Piano, studio upright, mahogany finish, \$225. 213-377-3582. C
- Wheels, for Porsche, 4, 4 1/2x15, hubcaps, \$20. 213-644-6475. C
- Land, 1 acre parcels, at China Lake, \$1,500 terms, or \$990 cash. 805-498-8501. C
- House, 3-bdrm., stove & oven bltins, marble entry, 2-car gar., patio & cover, plumbed for soft water, many extras, \$28,500. 213-323-4729. C
- Rabbits, \$2.50 ea. 213-677-5181. C

Miscellaneous For Sale

- Trailer, 16' Aljo, sleeps 6, brakes, canopy, refrig., stove, many extras, \$695. 213-723-3866. C
- Cartop Carrier, lge., streamlined box w/lock & key, \$18. 213-679-1631. C
- Console, AM-FM stereo, phono-outlets for recording, TV, 20" Packard Bell, maple, \$85. 213-329-9589. C
- Bicycle, 20" Stingray, \$35. 213-675-7982. C
- Rifle, Browning auto., 7 mm Remington magnum cal. w/3 to 9 variable Bushnell scope & mounts, \$350. 213-532-7175. C
- Tent Trailer, Sears Mod. 400, folds out to 16' wide by 9' long, \$250. 213-374-8201. C
- Slim-Jim, \$80. 213-676-7910. C
- Tape Recorder, AC & DC w/5 reels, Sears make, \$25; camping trailer, 1969 17 1/2' Aljo, self-contained, \$2,000. 213-830-5284. C
- Tire, Guardian Premium belted 78, whitewall, 4 ply, 7.35-14, \$35. 213-371-2664. C
- Swimming Pool, 18'x4', inc. filter, pump, ladder, sun deck, used once, \$250. 213-644-6629. C
- Piano, Baldwin Acrosonic spinet & bench, mahogany, \$525. 213-894-1381. C
- Air Conditioner Kit, fits Fiat 124, can be adapted for other small cars, \$150. 213-645-7972. C
- Boat, 18' Glen L runabout w/windshield, 327 Chev., velvet drive & trailer, \$2,250. 213-378-4959. C
- Property, river front, in Mother Lode country, approx. 5 acres, \$5,000. 213-371-3171, 213-675-2217. C
- Dial Test Indicator, Starrett Universal & box w/all attachments, \$15. 213-377-3487. C
- Air Compressor, Universal, built into cabinet unit w/tank, air reg., auto. turn off switch & Crown spray gun, \$35. 213-378-3212. C
- TV, b&w, maple cabinet, UHF converter & V.M. turntable, \$60. 213-679-6982. C
- Trailer, tandem, 26' Oasis, 1 yr. old, fully self-contained, 4-whl. elec. brakes, \$4,500. 714-827-1163. C
- Motorcycle, Honda C110, 65 cc, off-road only, \$75. 213-377-2552. C
- Saxophone, alto, Greisch Commander, \$55. 213-377-8508. C
- Motorcycle, 1970 Honda 175, \$385. 213-377-4481. C
- Trailer Hitch, hvy. duty for Datsun 510 station wagon, \$15. 714-968-5343. C
- Picture Windows, 2 48"x60", \$10. 213-379-4517. C
- Trolley Hoist, 1 ton cap., rides on 5" straight or curved I-beam, \$95. 213-545-6719. C
- Outboard Motor, 2 h.p. Evinrude Sportsman, \$55. 213-328-8830. C
- Wheels, 15x8, for Corvette, w/beauty rims & hubcaps, \$48 or \$12 ea. 213-434-4001. C
- Stereo, AM-FM, in cabinet, lge. spkrs., \$100. 213-644-9394. C
- Guitar, instruction books, \$35. 213-676-8817. C
- Sailboat, 13' O'Day Widgeon, American trailer, access., \$650. 213-279-2474. C
- Camera, Mamiyaflex w/3 lens, 65, 105, 180 mm & Porroflex viewer, \$200. 213-329-3760. C
- Mobile Home, 2-bdrm., 2 baths, adult 5-Star Park, landscaped, porches, awnings, shed, Harbor City area, no pets, \$10,500. 213-325-4390. C
- Boat, 16' runabout, 25 h.p. Johnson, elec. start, fiberglass o/plywood, C. G. equipped, tilt trailer, \$295. 213-377-1075. C
- Guitar, Martin acoustical elec., hard case, \$198. Box 702. C
- Rearend, 4.11, '58-'64 Chev., \$35. 213-325-3675. C
- Motorcycle, 1970 Honda, 450 cc, \$750. 213-323-6401; 213-327-2330. C
- Tape Deck, Teac, Model A-1500, \$225. 213-372-7875. C
- Mobile Home, 10x60 1964 Summit, furn., 3-bdrm., incl. awning, shed, skirting & cooler, must be moved, \$4,000. 213-634-6717. C
- Clothes, for infant & baby & equipment, thru age 5, \$100. 213-670-3758. C

Wanted To Buy

- Peerless GT, will pay cash. 213-329-1705. D
- Electronic Testing Equipment for TV, VTVM, tube tester, RF signal generator or audio signal generator. 213-375-4574. D
- Bicycles, lady's & man's Derailluer, 10-spd., lightweight, both good condition. 213-374-6727. D

For Trade

- Electronic Test Equipment trade for photographic equipment. 213-630-4188. E
- TR-3 sports car, want to buy or trade for bus or van, Dodge, Chev., Ford or VW. 714-776-2709. E

Free (To Be Given Away)

- Parakeet, must have own cage. 213-675-6895. E

Rentals Offered

- Studio Apt, lge. 2-bdrm., 2 1/2 baths, subterranean gar., adult bldg., Inglewood, \$285 mo. 213-670-6084. G
- Vacation Cabins, Idyllwild, 1 & 2 bdrms., stream, patio, f/place, \$30-\$40 w/end, \$70-90 wk. 213-868-8040. G
- House, 3-bdrm., family rm., f/place, dish-washer, intercom, near Northrop, \$225. 213-675-3830, 213-679-4400. G
- Cabin, Lake Arrowhead, 3-bdrm., colored TV, f/place, completely furn., \$125 wk., \$60 w/end. 213-831-1745. G
- Cabin, Moonridge, Big Bear Lake, 3-bdrm., 2 baths, f/place, completely furn., family only, \$125 wk., \$50 w/end. 213-326-7232. G
- House, Bass Lake, \$150 wk., \$45 w/end. 213-374-3702. G

JUST SAY CLIPPER AND...

Aviation Historians Come to Life

Northrop personnel know their aviation history—especially about Clippers.

This was revealed after the Northrop News published a short note in January that A. B. Custis of Brown & Root - Northrop, Manned Spacecraft Center, Houston, was seeking information about a plane called "The Yankee Clipper" which he believed Northrop had built in the mid-1930's.

Since that time the News has received a steady stream of information gleaned by aviation history enthusiasts in the company.

It seems that the name "Clipper" belonged to Pan American Airways and the planes originally designated "Clippers" were built by the Martin Company. Then Boeing took over with the 314A flying boat which Pan American also designated "Clippers."

Johnny Johnson, former Air Force Flying Wing test pilot, tells us that Martin built the first flying boat called the "Yankee Clipper" and that it was used on the Pacific route along with two others called "The Hawaiian Clipper" and the "China Clipper."

Ted Costa, tool liaison, was

with the U.S. Air Corps in Hawaii when the first Clipper arrived. As he recalls it, he went along with a flight of five Keystone bombers to intercept the Clipper and escort it in to Honolulu. The escort planes were from the 50th Observation Squadron, Luke Field. Luke, not the same as the present Luke Air Force Base, Ariz., was on Ford Island in Pearl Harbor.

Martin built only three of the Clippers and then the name was taken over by the Boeing 314A flying boat. Apparently there were only three of these, also. From C. D. Leavenworth and Dave Mercier of the Electro-Mechanical Division we learn that these were named the "Yankee Clipper," "Dixie Clipper," and "China Clipper." The Yankee Clipper and China Clipper were given these names after the original Yankee and China clippers crashed.

At the beginning of World War II, before entrance of the United States into the war, the three 314A's were lend-leased to Great Britain. They were renamed "Bristol," "Bangor" and "Berwick."

The three former Clippers flew

a route from England to Africa to Brazil and then to Baltimore, Maryland, where they were overhauled after each round trip.

Other informants came through with a rash of additional information, such as that the plane had flush riveting on the bottom skin to make it slide through the water easier, carried a crew of 11, including two stewards. Stewardesses are a more modern innovation. The Clipper could carry five tons of mail and cargo along with 68 "day" passengers or 38 sleeping passengers. It was powered by four 1,600 horsepower Wright "Cyclone" 14-cylinder engines. The engines were accessible during flight through wing companions.

The Clipper passenger deck included a lounge or recreation room seating 12 passengers. There were two decks, upper or control deck and the passenger deck. A staircase connected the two.

And finally the News learned from its readers that the Clippers had a maximum speed of 210 mph at 6,200 feet altitude with a normal cruising range of 3,685 miles.

EDITOR'S NOTEBOOK

For years now we've harbored this thing about numbers—favoring some for obscure reasons, despairing of others without reasons, and switching our favoritism at the slightest provocation. Without giving a great deal of thought to the matter, we filed this little trait away under "personality quirks" and let it go at that. Then along came LeRoy F. "Red" Oates with a story that makes us aware of that maybe we need to exercise some more reasoning in our numbers game.

Mr. Oates is an Aircraft Division employee in Food Services, a man encountered by many on the "business end" of the serving line in the cafeteria. He says that prior to World War II he was firmly convinced that the number 13 was unlucky for him. He refused to live in a house with a 13 in the address, buy a ticket or do anything as long as the number 13 was a part of the process. Then he joined the Merchant Marine on Aug. 13, 1941, and things began to happen.

He landed in Manila on Sept. 13, 1941; in Shanghai on Oct. 13; and Hong Kong on Nov. 13. Departing Australia Dec. 2, he spent 43 days at sea without sight of land and ate nothing but macaroni for 20 days, but came through the ordeal to land in Panama Jan. 13. And he returned to Los Angeles April 13. He served on 13 ships during World War II and was discharged after serving each, or 13 times, before he was finally released from the Merchant Marine Dec. 13, 1946. "That changed my mind and now I can truthfully say the number 13 is very, very lucky for me," Mr. Oates says.

* * *

Everyone has heard of the classic cops and robbers "getaway car." But Forrest Godfrey, a contract administrator at the Ventura Division, is more familiar with a new kind of escape vehicle—the "getaway bicycle."

It all started one morning when Mr. Godfrey discovered his 10-year old son Jay's bicycle missing from the front porch of the Godfrey home in Camarillo. The bicycle was properly licensed and registered so Mr. Godfrey reported the theft to the police.

A check at the police station of recovered bicycles was unsuccessful. Later that morning the police called Mr. Godfrey at work to tell him they had found Jay's bike and arrested the person riding it on suspicion of burglary.

"I didn't know that stealing a bicycle was burglary," Mr. Godfrey told the police. They answered that apparently the bicycle thief burgled a house in Mr. Godfrey's neighborhood and then used the bike for a fast getaway.

Did Mr. Godfrey get the bike back? "Not yet," he explained, "it has been impounded as evidence. But now at least we know where it is."

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Daylight Saving Time Means Lots of Re-Setting for Ventura Watch Collector

When Daylight Saving Time rolls around again on April 25 one Ventura man is going to have his hands full setting his timepieces.

S. L. (Ash) Ashworth, a technician in the Quality Control Laboratory, is going to have to re-set more than 100 old railroad pocket watches which he and a friend have accumulated.

Even though some of them date back to the early 1800's (and before railroads were invented), Mr. Ashworth and his partner, Jim Witherell, have all of the watches in running order.

Mr. Ashworth became interested in old watches about 18 months ago when an earlier hobby of collecting old bottles led

him to trading some bottles for a handsome old watch.

Now he is a prospective member of the National Association of Watch and Clock Collectors and travels all over Southern California attending local NAWCC meetings and shows. Many of his watches he got at swap meets or pawn shops. Some jewelry stores also carry very old watches.

"Sometimes people have an old watch that hasn't been running in their memory and they'll want to get rid of it for whatever they can. I'll buy it or trade for it, take it over to Jim's house and fix it," he said.

Mr. Ashworth and Mr. Witherell have about \$6,000 in stock and equipment. A recent North-

rop News ad seeking jewelers collects (small chunks for a jeweler's lathe) found an Aircraft Division man, a former jeweler, with enough equipment and tools to go into business.

"There are lots of people collecting watches and clocks," he says. "I was back East last summer and went to a show where an elderly gentleman was displaying 5,000 watches which he owned."

And the older and better they are the more they are worth. Mr. Ashworth said he saw one watch valued at \$6,500 one time. His most expensive timepiece is worth about \$250.

"Your key wind watches, Waltman, Elgin and Illinois, made in the 1860's and up, are the real collector's items," he explained. Most American collectors deal in American - made watches although some European watches can be found in collections.

Venturans to Join Barbershoppers in CLC Performance

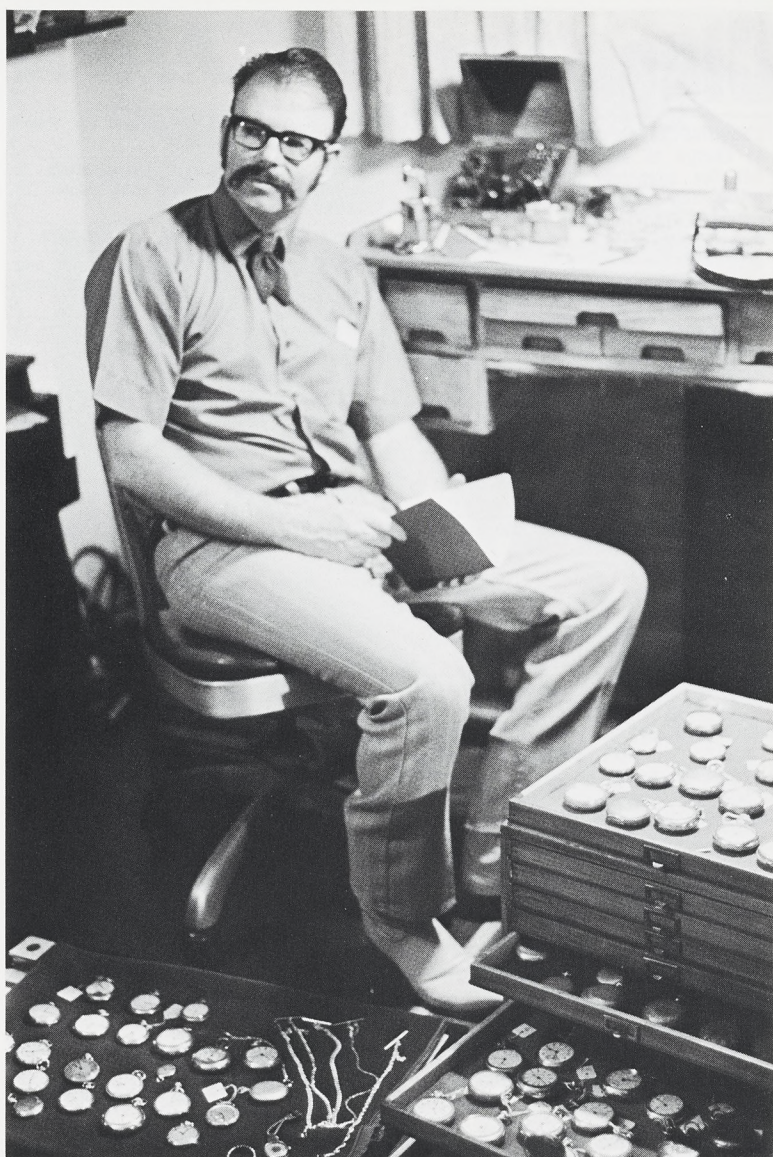
"Banners of Music in a Sea of Harmony" is the title of an evening program of barbershop quartet music sponsored May 8 by the Conejo Valley Chapter of the Society for the Preservation and Encouragement of Barbershop Quartet Singing in America.

In the Harmony Oaks Chorus of the Conejo chapter are three Ventura men including the chorus manager, John Gurule. The others are Jack Riedl and Irv Irvine.

The Harmony Oaks chorus and five other award-winning quartets from throughout Southern California will be featured in the show at the California Lutheran College auditorium.

Some of the proceeds will go to the Institute of Logopedics which is a school in Wichita, Kan., devoted to aiding speech handicapped children.

Tickets, at \$3 reserved and \$2 general admission, may be obtained by calling Mr. Gurule, ext. 1184, Mr. Riedl, ext. 1133 or Mr. Irvine, ext. 1225.



HE KNOWS WHAT TIME IT IS

Ash Ashworth checks catalog among some of his many old watches.

SNEAK PREVIEW FOR GRAND LAND SINGERS

Members of the Ventura Division Management Club will have an opportunity to sneak pre-

view the main attraction of their Aug. 7 meeting if they go over to Moorpark College next week.

The Grand Land Singers, a 60-voice chorus of Cerritos College students, are appearing in the college's student center at 8 p.m. Saturday, April 24. There is no admission charge, although tickets are required. They may be obtained from Frank Lund in Personnel.

Known nationally for their patriotic songs and wholesome presentation, the Grand Land Singers will cap a special day of family activities later in the year for Management Clubbers and their families.

If you ever wanted a sneak preview, here's the chance.

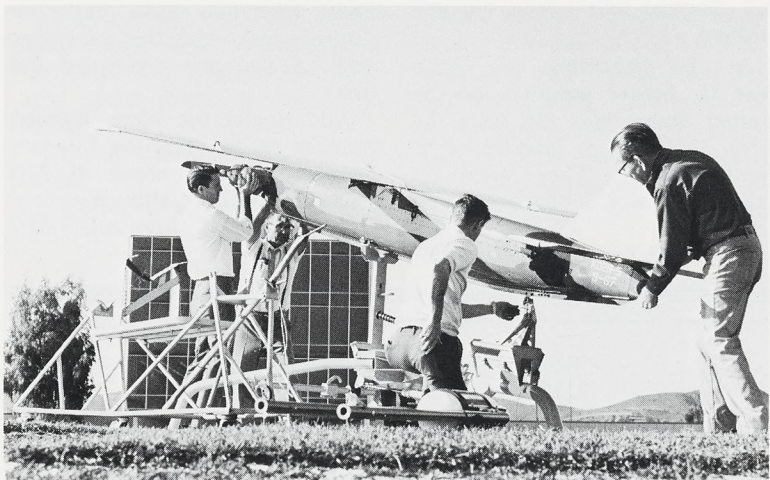
Dividend Declared

The board of directors of the Ventura Division Credit Union (Northrop Ventura Employees Federal Credit Union) has declared a 5.1 per cent dividend on deposits for the first quarter of 1971 ending March 31.

Deposits, or shares, are now insured for up to \$20,000 by the National Credit Union Administration of the federal government.

Further information on the services of the Credit Union may be obtained by calling Peggy Heacock, manager, at ext. 420.

Making It Just Right



READY TO LAUNCH a KD2R5 Basic Training Target from the front lawn of the Ventura Division? Not quite. Rather the men, from left, Gene Davis, Buck Gilmore, Norm Young and Bill Glenn, were setting the drone up for marketing photographs.

Setting The Record Straight—With Apologies to The Bartzes

Since they first became associated with the Ventura Division (then Radioplane) nearly 30 years ago, members of the Bartz family have been well-known by their co-workers.

The Northrop News in its Mar. 17 edition inadvertently erred in identifying one Bartz as another. To set the record straight:

Marie Bartz, of the MQM Assembly Line, received a pin for 20 years of Northrop service.

Her husband, Al, a foreman in Metal Fabrication, begins his 29th Northrop year in May.

Al Bartz's cousin, Harry Bartz, was supervisor of the Model Shop until his death three years ago. Harry's wife, Marcella, worked in Production from 1945 to 1958.

Al's uncle (and Harry's father) Fred Bartz, retired a dozen years ago after many years of Northrop service. Betty Goodrum, also Al Bartz's cousin, is in 747 Final Assembly.

VENTURA DIVISION RECREATION CLUB ROUND-UP

Tickets are now available for the annual Northrop Night at Disneyland scheduled for Saturday, May 22.

Cost is just \$4 per person (three years of age and up) for a ticket which carries full park ride privileges from 8:30 p.m. to

1:30 a.m. strictly for Northrop personnel and their guests. Parking is free.

Tickets can be obtained from the Rec Club office in Room E-123 from 11 a.m. to 1 p.m. on Mondays, Thursdays, or Fridays. They will also be available soon

on Tuesdays and Wednesdays in the cafeteria at lunchtime.

Rec Club officers are exploring the possibility of round trip bus service to Northrop Night. Interested personnel should leave their name with Rec Club Secretary Kathy Miller.

For those who are unable to attend Northrop Night the Rec Club is offering Magic Kingdom Club memberships (free) which allow members special discount Magic Key ticket books to Disneyland.

The adult book is a \$12 value for \$4.75; juniors, ages 12-17, an \$11.40 value for \$4.25; and children, 3-11, an \$8.65 value for \$3.75.

Those prices are good only through May. Magic Kingdom Club cards may be obtained at the Rec Club office.

The Rec Club is offering bus rides to six Los Angeles Dodgers baseball games this summer, in-

cluding a double header late in the season.

Tickets, at \$3 each, are standard \$2.50 seats at Dodger Stadium. The extra 50 cents is helping to pay for the buses for the five dates.

The dates are:

Philadelphia, helmet night, Friday, May 28. Bus leaves the Ventura Division at 6 p.m.

San Diego, ball night, Friday, June 25. Bus leaves at 6 p.m.

San Francisco, Saturday, July 10. Bus leaves at 5 p.m.

Montreal, Saturday, Aug. 14. Bus leaves at 5 p.m.

Atlanta, double header, Sunday, Sept. 19. Bus leaves at 11 a.m.

The buses are scheduled to depart two hours before game time, explained Bill Umbenhauer, Rec Club vice president.

He said tickets are available at the Rec Club office on Mondays, Thursdays and Fridays. Tickets unsold eight days before each date will be returned to the ball club.

"We have a limited number of tickets so ball fans should reserve their seats as soon as possible," he added.



Ventura Division Golf Clubbers are increasing their activity with after-work play on Conejo Valley courses.

Ventura will field two eight-man teams in the Rancho Conejo Industrial Golf League beginning Tuesday, April 27. Participants will play alternate weeks.

Greens fees will be \$2.50 and interested players are urged to contact Ken Brubaker, ext. 1340 or Dick Kipp, ext. 1245. Frequently there is a waiting list for this league.

A week-day evening league strictly for Venturans is also possible at the Sunset Hills course. Greens fees would be \$2.

Interested players are invited to call Commissioner Warren Sparks, ext. 1448, or Vice Commissioner Bob Jones, ext. 1459.



ROLLING OUT THE RED CARPET

Many Ventura families will go to Disneyland for Northrop Night.

NORTHROP NEWS

VENTURA DIVISION EDITION

Published biweekly by Northrop Corporation, Los Angeles, California

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READYING FLARE FOR DROP TEST

Lloyd Wetzel and Milo Thomas make final adjustments at drop tower.

Target Flare Tow System Undergoes Final Testing

A unique flare tow and release system for Ventura Division-produced KD2R5 Basic Training Targets and related Northrop targets went through its final test phases this month.

The tow itself trails up to 150 feet behind the target and emits either infra-red radiation for heat-seeking missiles or smoke for visual sightings and firings, allowing maximum re-use of Northrop targets.

Conceived by Dick Botzum, who is now with the Ventura team on the NAMFI Range on Crete, the system includes an electro-mechanical sequence controller, tow reel and expendable cable, fins and nose (on the flare) and the flare itself.

Two Per Wing

Four flare tows, two placed under each wing, can be commanded from the ground to deploy individually after the target is launched. The flares are 16 inches long and 1 3/4-inches in diameter.

The system is unique because it does not utilize any pyrotechnic devices to deploy the tow line or disengage the line while in

EARNs DESIGNATION

Lowell Lyle, a buyer in Procurement at the Ventura Division, has received a professional designation certificate in purchasing management from UCLA after completing a special series of courses in that field.

flight.

Members of the Target Systems Project office, who did engineering work on the system, include Harry Caseldine, Chris Benneche and Gordon Reeder.

Working on the development and test, including a recent 80-foot drop test at the Ventura facility, have been Les Myers, Bob Vogt and Otto Goerisch, who also is with the Ventura team on Crete.

The final test of the system, which will be produced at the Ventura Division, took place on a U.S. Army MQM-33 target at Ft. Bliss, Tex.



CHECKING THE HARDWARE

Chris Benneche, Gordon Reeder and Dillon Cox inspect flare after test.

Four Qualify for 20-Year Pins, Six Others Get 15-Year Emblems

Four Ventura personnel received 20-year pins and six others earned 15-year emblems for consecutive Northrop service this month.

Three of the 20-year recipients, Stiles Burke, Bob Hutton and Glenn Westcott, started their Northrop service in 1951 with then-Radioplane in Van Nuys. The other, Zelda Hampton, began at the Aircraft Division.

Mr. Burke, director of International Marketing, started in the drone recovery business and was part of the initial recovery team which led Ventura to contracts for all manned U.S. spacecraft recovery systems.

He has been in International Marketing for the past five years and was recently named director in that group by George Grogan, vice-president, Product Development.

Mrs. Hampton transferred from the Aircraft Division to Ventura in May 1966. Today she is an assembly bonder working in the T-38 and F-5 Plastics area.

Mr. Hutton started out as an inspector in Quality Control, became chief inspector and moved into the administrative level in 1958. Today he is manager of Vendor Control and Metrology.

Mr. Westcott has been building Northrop products for the past



Mr. Burke



Mrs. Hampton



Mr. Hutton



Mr. Westcott

two decades. Beginning with the OQ-19 target he has worked on the T-38 and F-5 seats, MQM-74A target and for the past 18 months has been on 747 Final Assembly.

Qualifying for 15-year pins in

April are Bennie Bourland, Don Conlan, Jack Landis, Edward Lewis, Lee Recchia and Ruth Weiss.

Recipients of five-year pins are Francis Baker, Alan Gale and Hap Haszard.

Computer Language Course Completed By 12 Venturans

Twelve Ventura Division men have completed a 12-session in-plant course on General Purpose Simulation Systems (GPSS) related to the use of computers in solving complex day-to-day technological problems.

Ivan Blum, of the Economic Analysis Staff, taught the class which utilized programming techniques on the IBM 360 computer.

Mr. Blum had the students cover a wide range of problems both in and out of class. "All

of the problems are too complex to be solved manually, with a pencil and paper, but they can be solved with the computer," he said.

A typical problem involved modified assembly line flow with variables in manpower production effort, in-flow of job, process times and scheduling criteria.

The variables were injected with terminology such as "all jobs are processed in arrival order except for job Type 5 which will pre-empt all other jobs currently under processes A or B." Running simulated "what if" programs on the computer is the only feasible way to compare alternatives and gain insight.

Bob Ross, a systems analyst, says he hasn't come across a situation (since completion of the course) where he can use the material he learned, "but it's good to know of this added capability in problem solving and that I am able to apply it when needed."

Bob Hodson, an industrial engineer, plans to run a series of simulations on backlogs of inventory and their flow rate with numerically controlled machines. Dick Provenza plans similar uses for GPSS.

Others who received certificates of completion were Dave Coe, Bob Cole, Bill Glass, Bob Harris, Frank Hoeven, Bob Jones, John Johnson, Dick Small and Warren Sparks.

Northrop Division To Monitor Noise

Northrop's Electro-Mechanical Division in Anaheim has received an order from the Orange County Airport to design and install an airport noise monitoring system. Northrop's ECOLOG-1 system has been successfully tested in this field.

The division also has received a contract from the Naval Facilities Command to develop and manufacture instrumentation and support system hardware for the new Ocean Simulation Facility at Panama City, Fla.

Lavi is his alternate. Mr. Lund and Mr. Campbell will be counselors in the initial workshop set for the first week in May.

Seven PMR Section members recently met with Mr. Flores and Mr. Lavi at Ventura to discuss workshop details. In the group was Dave Shapiro, of Hughes Aircraft Co. in Canoga Park, local AIAA workshop chairman.

"We are conducting the workshops because so many engineers we know have neglected to learn techniques of job hunting and are thus naive about getting a job and negotiating for a salary," Mr. Shapiro said.

Job hunting is a new activity for most aerospace engineers. Most were recruited by aerospace companies right out of college and have been sought-after ever since, he explained. AIAA is sponsoring similar workshops nationwide.

Among the subjects to be covered in the workshops are assessing the job market and the candidate, "how to land the opportunities," preparing a resume, interview conduct and salary negotiating.

Engineers, scientists and other aerospace professionals desiring to attend need not be AIAA members. There is no charge for the program but reservations must be made by calling (805) 482-7215.

AIAA-SPONSORED WORKSHOPS TO TEACH JOB-FINDING TECHNIQUES

Four Ventura Division men are making plans for a workshop series to help job-seeking aerospace engineers and scientists find employment.

John Flores, Ray Lavi, Frank Lund and Al Campbell are working with the Pacific Missile Range Section of the American Institute of Aeronautics and Astronautics (AIAA) in setting up the workshops.

Mr. Flores is counselor coordinator for the project and Mr.

Northrop Personnel Planning for Annual Savings Bonds Drive

"Take Stock In America" will be the theme of this year's U.S. Savings Bonds campaign for personnel of all Northrop facilities beginning May 14 and ending May 28.

M. E. (Red) Beyrodt, Corporate coordinator for the program, said division and facility coordinators will begin lining up

in-plant boosters soon.

Heading the drives at their various facilities are R. H. Johnson, Northrop Corporate Laboratories; Harry Belcher, Electro-Mechanical Division; Frank Tipton, Ventura Division; Alden McKechney, Northrop Architectural Systems; Larry Long, Aircraft Division; Lore Krumreich, Electronics Division; Sandy Tapper, Corporate offices; and Bill Hayman Northrop Data Processing.

Campaign coordinators and their appointed boosters will strive to maintain the 88 per cent level of employee participation which ranked the company eighth in the nation of all major corporations reporting.

"Northrop employees have consistently supported the Savings Bonds program at an extremely high level of participation," Mr. Beyrodt commented.

He noted that the Aircraft and Ventura Divisions each were awarded a special Treasury Department flag last year for topping the 90 per cent level in employee participation.

NRC DISNEYLAND TICKETS ON SALE

All Northrop ticket outlets are now offering tickets for a full evening of entertainment at the lowest possible cost in the form of Northrop's annual Night At Disneyland.

The date is May 22.

From 8:30 p.m. to 1:30 a.m. all Disneyland will be reserved exclusively for Northrop families. And the \$4 ticket price includes parking, admission and unlimited use of all rides, attractions and shows during this period. Shooting galleries are excepted, of course.

KINNALLY NAMED

John W. Kinnally has been selected to serve as vice president and director of technical services for Northrop Page Communications Engineers.

Mr. Kinnally comes to Northrop from the Defense Communications Systems Division of RCA where he served as vice president—Marketing.



STUDYING NORTHROP'S SMOG FIGHTING TECHNIQUES
John Gunderson and Roger Barquist with Professor E. G. Chilton, right, and student.

Arizona Visitors Observe Smog Control Test Center

E. G. Chilton, professor of engineering at Arizona State University and a group of his students visited the Electro-Mechanical Division recently to observe operation of the Northrop-Olson Vehicle Emission Test Center.

The visit was part of a West Coast pollution-ecology field trip to observe smog control activities in California. Results of the trip will be used in a study of means to protect Arizona's environment.

ORDNANCE GROUP TABS GUS DUKE

Northrop's Gus G. Duke served as program chairman for the spring meeting of the Underwater Ordnance Division of the American Ordnance Association April 20-22 at the Naval Air Test Center, Patuxent River, Md.

Mr. Duke is the Ventura Division's regional director, Marine Systems, in the Eastern Regional office.

Among speakers at the meeting were: Rear Adm. H. L. Miller, commander of the test center; Rear Adm. Parker B. Armstrong, manager of the Anti-Submarine Warfare Project Office; David R. Heebner, deputy director of Defense Research and Engineering; and Capt. A. C. Derrick, deputy commander, Naval Aviation Integrated Logistics Support Center.

At the division the group was guided by Roger Barquist and John Gunderson. Mr. Barquist briefed the visitors on the total Northrop environmental and pollution program, including not only control of plant emissions, but also the company's work in noise monitoring and the recently completed environmental study for an international airport in Puerto Rico.

Mr. Gunderson explained operation and objectives of the Northrop-Olson Emission Test Center. The division is conducting one program for the California Air Resources Board and Olson Laboratories is conducting another for the Department of Health, Education and Welfare.

The Northrop program is a two-part study to determine the value of periodic inspections of automobile emissions as a means of reducing air pollution. The Olson program tests 1970 and 1971 cars to determine if exhaust controls on new cars are performing their designed job.

Joe Wicherski Assigned to Fill Corporate Editor Post

Joseph L. Wicherski has joined Corporate Public Relations and Advertising as editor of corporate

Max Pellerin Will Attend SBA Session

Northrop's Small Business administrator and the president of last year's top subcontractor in the nation will attend the fourth annual subcontracting conference and awards next month in Washington, D.C.

Scheduled to address the 500-700 expected participants from government and industry is Henry J. Thiem, of Thiem Industries Inc., in Torrance.

Max Pellerin, Small Business administrator for the Aircraft Division, will represent Northrop at the May 16-22 event. President Nixon has proclaimed those days as Small Business Week.

Thiem Industries was Northrop's nominee last year. The firm was judged best on the West Coast and topped another 300 nationwide entries to earn the coveted Small Business Subcontracting Award of the Year.

Mr. Thiem and Mr. Pellerin recently served as judges with three other industry representatives and two non-SBA governmental representatives to select the West Coast nominee for this year's competition.

"We selected the best of 45 entries," Mr. Pellerin said. The judges do not know the names of the companies involved. Criteria in judging includes quality, schedule, cost, and ability to meet contractual requirements.

The West Coast nominee and top entries from the nine other SBA districts are then judged for the national award. Runners-up each receive regional awards. A special SBA committee makes the final selection.

Participating at the series of meetings in Washington will be representatives of prime contractors, government agencies, members of Congress, the Aerospace Industries Assn., Electronic Industries Assn. and the National Security Industrial Assn.

Grant Macdonnell Study Group Head

Grant Macdonnell has been appointed chairman of the Commission on Government Procurement's Study Group on Cost and Pricing Information.

Mr. Macdonnell was vice president and controller of Northrop Corporation before he capped a long company career recently with retirement.

Mr. Macdonnell's Study Group is charged with evaluating the government's requirements for cost and pricing data and determining whether such requirements are reasonable and well-defined and whether they might be simplified and improved.

An important facet of the study will be an evaluation of the Truth in Negotiations Law.

Specifically, the Study Group will evaluate such concepts as "should cost" analyses, parametric pricing, marginal cost, and contract-value analyses to determine if they can be used more effectively in the pricing of government contracts.

communications.

Mr. Wicherski comes to Northrop after six years with the Chase Manhattan Bank in New York City, where he served as manager of press relations, assistant director of advertising and promotion, and manager of editorial services.

While serving

in these positions, he worked closely with the bank's senior management in the determination of corporate policy, the development of marketing strategies and the design and implementation of the bank's socially oriented urban affairs program.

Mr. Wicherski also has served as vice president of Ash, Holland & Co., Inc., of New York, an investment management and real estate development firm. His responsibilities included market research and contract negotiations.

He is a graduate, summa cum laude, of Boston University, the Graduate School of Journalism at Columbia University and the Graduate School of Business Administration at New York University.



Mr. Wicherski

RETIREEES SLATE ANNUAL REUNION

The Northrop Retirement Club will hold its fifth annual reunion Wednesday, May 19, at Alberto's Restaurant in Torrance.

According to Paul Sanders, club president, the group holds monthly meetings and frequent outings, but the big reunion is a once-each-year event attracting former Northrop employees from across the nation.

Robert Patchin, manager of Commercial Program Plans for the 747 Program, will be the principal speaker of the evening. Tony Guerreiro will be the emcee.

Games and other activities begin at 3 p.m. Dinner will be served at 6:30 p.m. Reservations may be made by contacting Cathy Young, ext. 2486, at the Aircraft Division.

IF EARTHQUAKE HITS

Experts Suggest Things to Remember

(Editor's Note: The following are some simple things to remember during and after an earthquake. These tips, extracted from the U.S. Government pamphlet, "Safety and Survival in an Earthquake" and from Los Angeles County and Cities Disaster and Civil Defense Commission publications, will reduce the dangers to you, your family and others.)

1. Remain where you are. Indoors or outdoors, it is better not to run or to try to go somewhere else until the earthquake has ended. If you must leave a building (fire or evacuation order) walk slowly, choose your exit, don't stop until you are well clear of the building.

2. Take cover. Indoors, get under a desk or table, or stand in a doorway. A metal desk is best, but choose the sturdiest desk or table you can reach near

at hand. If none is available, a doorway is good. Outdoors, get away from buildings, walls, power poles, and any other tall objects. Do not run through the streets. If possible, move to an open area. If you are in a car, stop in an open area.

After an earthquake you may be exposed to hazards as great as those during the earthquake. The following rules will help to reduce those hazards:

1. Remain calm. Think through the consequences of your actions.

2. Check for injuries. If someone is seriously hurt, do not attempt to move him unless he is in danger of further injury from fire or falling objects.

3. Check for fire and fire hazards. Shut off the main gas valve if a leak exists, electrical power if there is damage to electrical wiring. Do not touch

downed power lines or objects in contact with them. Keep clear!

4. Clean up spilled medicines, drugs and harmful materials.

5. Check your freezer. If power is off, or freezer is inoperative, plan to use up foods which will spoil quickly.

6. Do not use your telephone. Check it to see whether it is out of order, but do not use it except for emergency calls.

7. Turn on your radio or television for damage reports and information. If you have no battery operated radio and the power is off, a car radio will suffice.

8. Do not repeat alarming stories. Usually such information is exaggerated, or entirely false. In any case, your repeating of such stories can do no good and may cause great harm.

9. Do not go to a disaster scene unless you are officially authorized to do so.



A Photoscope Visit To Palmdale

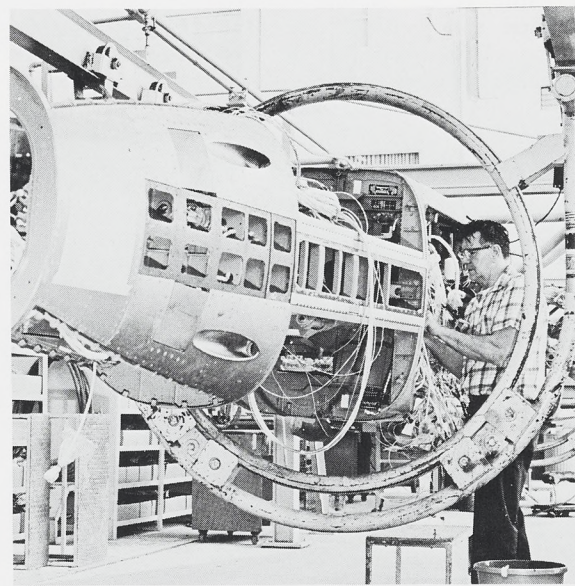
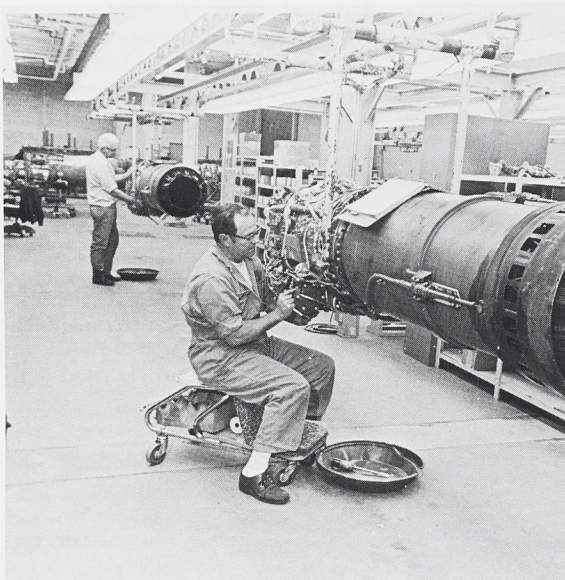
(Third of a Series)

Photographs by Sam Orr

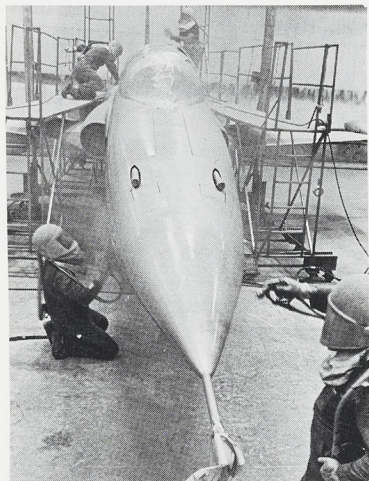
NORTHROP-BUILT AIRCRAFT above include both F-5's and T-38's being prepped for flight test and delivery. Following initial subassembly at Hawthorne, aircraft are trucked to Palmdale, assembled, tested, then flown prior to delivery. Facility fills key role in production activities.



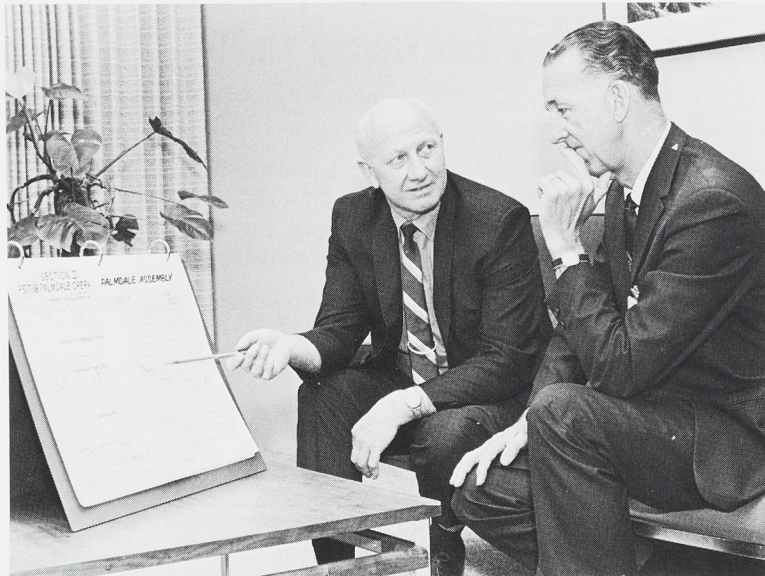
ARRIVAL of aircraft from Hawthorne finds Don Banville, left, and Charley Tanner busy with unloading chores.



PRODUCTION STEPS include engine build-up being performed by Jim Lauder, foreground, and Cliff Chase in photo at left. At right Frank Kline works on wiring in the cockpit. Circular fixture allows nose assembly to rotate.



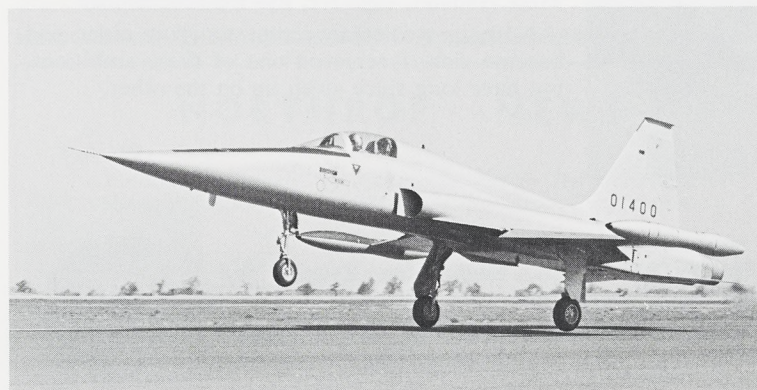
TASKS at Palmdale span everything from painting aircraft, above, to keeping track of technical orders, blueprints and production orders as Gib Goodman is doing in photo below.



SCHEDULING is close and Base Administrator Al Graber, left, talks over assignments with Superintendent Wally Johnson. Most Palmdale employees are veteran Northrop personnel.



ON THE DOTTED LINE—Air Force Representative Bernie Hirsch, left, signs acceptance papers for another aircraft with an assist from Northrop's Carl Doumont.



MOMENT OF TRUTH arrives when Northrop Test Pilot Darrell Cornell climbs aboard new aircraft, then lifts it aloft on its first flight test. At this time the work of thousands of Northrop employees blends in success.



JOHN, DAVID AND MRS. NUFFER WITH PINTO COW PONY



HARRY NUFFER SR., WITH SOME OF THE RANCH STOCK

Mueller, Nuffer Ramrod The Double Cross Cattle Spread

It's "home on the range" every weekend for Harry Nuffer and Lee Mueller of the Electro-Mechanical Division. That is when they swap their white collars for saddles and become genuine cowboys.

The two division men operate a cattle ranch in the Carbon Canyon area between Brea and Chino. The ranch has its own registered brand which is the

Figure 2 over an X and stands for the Double Cross Cattle Ranch. At present they are running about 150 feeders and stockers on 225 leased acres.

Originally Mr. Nuffer and Mr. Mueller partnered with former Northrop employee Norman Mosely in the ranch. Mr. Mosely was a former rodeo rider, Mr. Mueller had been raising chickens, and Mr. Nuffer's son had

raised several steer under the Future Farmers of America program. With this background the three became ranchers.

The first year they ran 100 head of stock and found out that ranching is a lot of hard work. They bought young calves and fattened them for the market. This takes an average of six to eight months. Then the fattened stock is sold either directly to feed lots, packing houses or to middlemen.

No Bed of Roses

"One of the first things we found out," Mr. Nuffer said, "is that ranching is real work. Cows have to be rounded up, treated when they're sick, fed and watered as well as dehorned and branded. We use an electric branding iron and keep four horses to use in handling the herd. Then in between these chores, there are fences to put up and mend."

If this doesn't keep them busy, there are unexpected chores like soothing the justified ire of a golf course manager when three

of their cows got loose on his grass.

Since the death of Mr. Mosely, the remaining two of them have continued to operate the ranch. They have become quite proficient as cowboys, except that they aren't much good with that old standby of the movie cowboy, the lariat.

"But then we don't need it," Mr. Nuffer said. "Ranching to-

day is quite different from the way it is portrayed in books and films. For example, we don't go chasing a cow, bulldog it, and scorch it with an iron brand heated over a campfire. The fat you run off a cow chasing it around the ranch is your money that is being lost."

Mr. Nuffer is manager, Quality Assurance, and Mr. Mueller is with Process Control.



THE LATE NORMAN MOSELY, RANCHER MUELLER AT COFFEE



COWBOY NUFFER SITS TALL IN THE SADDLE

WE ASKED THEM—What Did You Want to Be When You Were a Child?



J. B. Smith, power brake operator, Ventura:

A cowboy. I grew up on a ranch and always enjoyed working with horses and cattle and especially enjoyed calf roping. But these days I only get to ride once in a while.



Midge West, plastic laminator-lead, Ventura:

Just a housewife and mother. I never had any big and glamorous plans for anything else. I've always been an ordinary person.

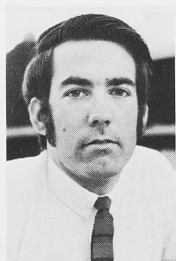
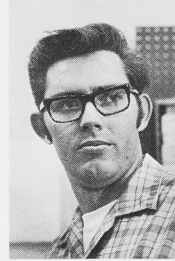
Gayle Hayes, relief receptionist, Aircraft:

From the first I wanted to be a dancer. The Sammy Davis type. I love that kind of dancing and I still practice it all the time.



Ronald Durham, Manufacturing Control, Aircraft:

I had my heart set on being a soldier or a sailor. My dad was in the Navy and I lived at the San Diego Naval Base when I was little. I was always playing that I was a soldier or a sailor.



Mike Holland, engineer, Electro-Mechanical:

Nothing particular except to grow older and become rich. I achieved one of these ambitions, but have long since given up on the other.



Fay Wong, Systems Engineering, Electro-Mechanical:

I wanted to be an artist when I was a child and I still would like to be one although I'm studying to make engineering a career. Art will be my hobby.

Elmer Baldwin Jr., Engineering Release and Standards, Electronics:

I wanted to become a Roman Catholic priest. However, I changed my mind after nearly four years at St. Joseph's Seminary in St. Benedict, La.



Ted Edmands, engineer, Electronics:

I didn't have any firm ideas about what I wanted to become in those days, but I was interested in the physical sciences.



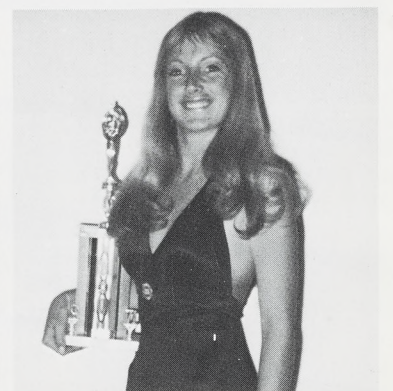
Debra Cary Wins 'Miss Army' Title

Debra Cary, daughter of George Cary, manager of Fabrication Dispatch, Aircraft Division, reigned as Miss Army at the City of Gardena's 14th Annual Loyalty Day Parade April 24.

Debra qualified for the honor as a runner-up in the Miss Gardena contest. Other runners-up represented the Air Force, Navy, Marine Corps and Coast Guard.

A junior at Gardena High School, Debra is 16 years old, weighs 119 pounds and is five feet, seven inches tall. She has blue eyes, strawberry blonde hair and measures a perfect 36-24-36.

An avid sports enthusiast, Debra is active in bowling, volleyball and surfing. She is a B-average student and plans to become a travel agent.



Debra Cary

Classified

Classified ad service is provided free of charge to all Northrop personnel. Ads for agencies, commercial enterprises and private businesses are not accepted. The Northrop News reserves the right to edit or omit ads. Ads are limited to two items per person per issue; each category to be submitted on separate form. Deadline is noon Wednesday, one week before publication.

Automobiles For Sale

- **Volkswagen**, camper, 1966, pop top, ice box, r/h, rebilt. trans. & eng., extras, \$1,700. 213-367-9644. A
- **Rambler**, 1965, 4-dr. American 440, auto. trans., r/h, recently installed new upholstery, batt. & brakes, \$675. 213-347-4087. A
- **Rambler**, 1966 American 440, a/c, p/s, Cruise-o-matic, stereo tape deck, r/h, h/top 2-dr. sedan, \$995. 213-365-7338. A
- **Mustang**, 1967, h/top, 289 cu. eng., p/s, 29,000 mi., \$1,500. 213-833-3334. A
- **Cadillac**, 1959 Coupe de Ville, only 50,000 mi., fact. a/c, full elec. power, \$490. 213-679-2119. A
- **Pickup**, 1962 Ford, 1/2-ton, needs some work, \$475. 714-494-6940. A
- **Truck-Camper**, 1967 Ford, 3/4-ton, 8 1/2' teardrop camper, 29,000 mi., \$2,845. 805-495-3381. A
- **Chevelle Malibu SS**, 1965, 6 cyl., p/s, r/h, \$795. 213-865-5133. A
- **Oldsmobile**, 1968 Cutlass Supreme, a/c, under factory warranty, \$1,975. 213-888-8890. A
- **Plymouth**, 1967 Sport Fury, 16,000 mi., a/c, p/s, p/b, \$1,765. Box 801. A
- **Volkswagen**, 1961, \$375. 213-326-7530, ext. 6. A
- **Metropolitan**, 1960, \$300. 213-370-7600. A
- **Toyota**, 1968 Corona, 2-dr. h/top, 4-spd., r/h, 36,500 mi., \$1,100. 213-327-0883. A
- **Mustang**, 1967, 4-bbl., 4-spd. trans., \$1,100. 213-785-1405. A
- **Corvair 500**, 1962, std. trans., needs repair, \$200. 213-677-2779. A
- **Datsun**, 1966 1600 roadster, h/top, mag wheels, lug. rack, r/h, needs trans. repair, \$800. 213-545-6719. A
- **Galaxie**, 1966, 61,000 mi., min. bid \$695; Charger, 1968, 72,000 mi., min. bid \$1095; VW van, 1966, 68,000 mi., min. bid \$795. Credit Union ext. 1117. A
- **Packard**, 1956 Clipper, orig. throughout, eng. recently rebilt., \$600. 213-375-0122. A
- **Corvair**, 1960, r/h, \$70. 213-378-7603. A
- **Chevrolet**, 1955, 2-dr., r/h, \$150. 213-376-3275. A
- **Corvair**, 1964 Monza, r/h, new tires, auto. trans., \$300. 213-670-4342. A
- **Station Wagon**, 1958 Chevrolet, 2-dr., 6 cyl., \$175. 213-324-5867. A
- **Cadillac**, Coupe de Ville, leather, AM-FM radio, \$3,000. 213-320-4243. A
- **Pontiac**, 1967 Vent., a/c, p/b, p/s, AM-radio, tape deck, \$1,100. 213-888-8018. A
- **T-Bird**, 1964, new batt. & tires, a/c, \$695. 213-423-1363. A
- **Ford**, 1962, 2-dr., 4-spd., high perf. cam & kit, Offenhauser 360° manifold, extras, \$350. 213-676-0497. A
- **Station Wagon**, 1955 Plymouth, auto. trans., \$200. 213-925-1934. A
- **Vega**, 1971, 2-dr. Hatchback, 4-spd., big eng., \$1,975. 213-697-6437. A
- **Chevrolet**, 1957, 2-dr., needs paint, \$400. 213-375-9397, 213-375-2091. A
- **Station Wagon**, 1960 Ford Country Sedan, 8 cyl., p/s, r/h, \$250. 213-876-4423. A

Household Items For Sale

- **Desk**, L shaped, walnut top, metal drws., \$65. 213-835-0717. B
- **Bedroom Set**, dble. bed, chest, dble. dresser w/mirror, incl. mattress & springs, bookcase h/board, antique red, \$60 or sell sep. 213-926-3839. B
- **Dryer**, GE elec., white, \$60. 213-672-5798. B
- **Bedroom Suite**, mahogany, dble. bed, dresser, chest of drws., bench, mirror, springs, mattress, \$60. 213-645-1613. B
- **Desk Chair**, judge's-type, black, hardly used, \$75. Box 802. B
- **Kitchen Table**, chairs, \$10. 213-675-1514. B
- **Dining Set**, maple, 5 misc. tables, washer, dryer, stove, elec., brkfst. set, other items, \$300 or sell indiv. pieces. 213-676-4771. B
- **Victrola**, antique, 1923 Victor, 78 rpm, walnut finish, \$95. 213-324-9769. B
- **Desk**, antique, maple, approx. 150 yrs. old, \$100. 213-370-7749. B
- **Stove**, Kenmore, gas, timer, clock, visi-bake oven, \$150. 213-679-2791. B
- **Baby Bed**, high chair, \$25. 213-675-6020. B

Miscellaneous For Sale

- **Swing-Silde Set**, sand box, 2 swings & 2 gliders, \$15; drafting stool & metal folding chairs, \$7.50 or sell sep. 213-376-4831. C
- **Tape Recorder**, Webcor, 8-track, stereo, player w/dual spkrs., \$90. 213-675-7982. C
- **Trailers**, box-type, 6x7x4', coil & leaf springs, 6-ply tires, spare, \$260; tandem, 8x14', 4-whl. Stromberg hyd. brakes, spare, flat bed, \$895. Box 803. C
- **Metal Locator**, Goldak Commander Mod. 720, 4-lb., 6-transistor, complete, \$85. 213-371-7958. C
- **Swimming Pool Outfit**, 18' Doughboy, complete, \$175. 213-925-0121. C

Miscellaneous For Sale

- **Typewriter**, 12 pt. IBM Executive, 16" carriage, carbon ribbon, Mod. A, \$100. 213-371-8330. C
- **Lens**, 28 mm 2.5 Vivita, incl. wide angle lens hood, for Mamiya Sekor or Pentax cameras, \$55. 714-533-3644. C
- **Guitar**, Fender Mustang & case, \$100. 213-833-5755. C
- **Boat**, 18' Glen L runabout, 327 Chev. inbd., w/windshield & trailer, \$2,250. 213-378-4959. C
- **Roll Bar**, for Mark IV Sprite or MG Midget, custom designed, w/tonneau cover, & cpts., \$45; hardtop for Mark IV Sprite or MG Midget, safety glass in rear window & port-holes, \$95. 213-823-4059. C
- **Acreage**, 1-1/10 acres in Oak Creek Canyon, Ariz., view of red-rock landscape & wooded terrain, 100 yds. to Oak Creek, \$7,500. 213-923-9957. C
- **Acreage**, 2 1/2 acres fronting on new Adelanto pvt. airport, M-1, \$75 dn., \$75 mo., \$7,500. 213-378-1026. C
- **Boat**, 12', wood, w/windshield, needs fiberglass on bottom, \$35. 213-367-9644. C
- **Generator**, portable, on trailer, 5,000 W., 50 amp., powered by Jeep eng., \$80. 213-329-1565. C
- **Vacuum Cleaner**, upright, Eureka Mod. 260A, \$35. 213-377-3806. C
- **Golf Clubs**, starter set w/bag, \$15. 213-374-4703. C
- **Motorcycle**, 1970 Yamaha, OT-1 Enduro, 2,000 mi., \$600. 213-371-5829. C
- **Acreage**, 1/2-acre, horses O.K., \$6,200. 714-774-8251. C
- **Acreage**, 10 acres near Mt. Lassen National Park, \$850 per acre. 213-676-3050. C
- **House**, w/2 corner lots, \$29,950. 213-372-1006. C
- **House**, will G.I., 4-bdrm., 2 baths, 2-car gar., near Inglewood Ave. & Compton Blvd., \$27,000. 213-679-6549. C
- **Tent**, 10'x18', Sears, dble. side room, outside poles, 3 cots, \$135. 213-371-2664. C
- **Engine**, Ford 213 CID, balanced, bored .060 over, performance cam, forged pistons, complete, \$425. 213-630-5562. C
- **Baby Buggy**, English, walker, jumper, clothes, \$35 or sell sep. 213-645-7972. C
- **Boat**, 12x6' Javlyn, glass-wood, 35 h.p. Evinrude elec. start, lge. wheel trailer, \$375. 213-633-2990. C
- **Motorcycle**, 1966 Honda trail, CT200, 90 cc, \$60. 213-679-4863. C
- **Camper**, 1971 Six-Pack, used once, will fit Datsun, Ranchero or El Camino trucks, \$795. 213-679-0034. C
- **Pups**, AKC collies, champ. bloodlines, \$50 & \$75. 805-947-7867. C
- **Motorcycle**, 1969 Honda Trail 90, \$225. 213-676-1235. C
- **Books**, 83 h/cover mystery/suspense & science fiction, 1966-71 club editions, 90¢ ea. to \$40 set. 213-672-5545. C
- **Camera**, Rollei 2.8, w/split image range finder, other extras, \$100. 805-498-2787. C
- **Dinghy**, 9' multi-hull glass, \$250; motor, 3 h.p. Evinrude w/fold-up shaft, \$100. 213-676-6600. C
- **Horses**, Welsh pony mare, 6 yrs. old, hackney style, \$175; shetland pony, stud, 2 yrs. old, ready for training, \$65. 213-323-5746. C
- **Engines**, Jeep Flathead, complete, \$40; Jeep F head, complete, \$60. 213-379-9670. C
- **Motorcycle**, 1969 TR6R, 6,800 mi., chrome frt. end, case & tank, \$950. 213-674-2233. C
- **Crypt**, dble., Forest Lawn, Glendale, Harmony Section, \$1,500. 714-679-2090. C
- **Hitch**, Easylift, w/elec. brakes, 2 side view mirrors, \$100. 213-830-5284. C
- **Lawnmower**, rotary blade, power, \$30. 213-377-3487. C
- **Property**, river front, in Mother Lode country, approx. 5 acres, \$5,000. 213-371-3171, 213-675-2217. C
- **House**, 2-bdrm., den, patio, fenced yd., 2 blocks north of El Camino, \$27,500. 213-679-4434. C
- **Coin Collection**, pennies, nickels, dimes, quarters, half dollars, face value plus 25% or \$750; wedding band & engagement ring, approx. 1 carat, interlocking, white gold, \$125. 213-644-7941. C
- **Road Race Set**, Sears, 2 cars, timer, 66 pcs. of track, \$12. 213-377-2544. C
- **House**, 3-bdrm., den, 1 1/4 bath, cpts., dps., bitins, elec. gar. door, 2 patios, assume low FHA loan, \$27,900. 805-482-5191. C
- **Boat**, 14' Lone Star, 20 h.p. Mercury motor w/Continental trailer, \$400. 213-370-2236. C
- **Juicer**, Acme, separates juice from pulp in all fruits & vegetables, \$40. 213-630-4188. C
- **Pickup Box**, 8' Fleetside, fits GMC or Chev., saddle gas tank locking doors, \$75. 213-676-5141. C
- **Home**, 2-bdrm., bitins, encl. patio, 50 x 150 lot, close to Northrop, \$24,000. 213-672-1716. C
- **Swimming Pool**, 18' x 4', all access, incl. redwood deck, \$250. 213-644-6629. C
- **Bicycle**, men's 10-spd. racing-type, \$55. 213-542-8118. C
- **Books**, misc. subjects, 15¢ ea.; old Playboy mags., orig. cond., 20¢ ea. 213-679-1631. C
- **Exerciser**, Slim-Master, cycle-type, w/adjustable tension control, \$19; hairsetter, elec., auto. G.E., 18-curler, white vinyl, zippered carrying case, special pins, \$10. 213-679-2864. C

Wanted to Buy

- **Trains**, Lionel, used, Mod. 773 or 2343 Streamliner, reasonable. Box 804. D
- **Golf Club**, woods #1 & #3, left handed, new or used. 213-370-0479. D

UNAUTHORIZED VISIT

Smiling Monkey Had A Mind of His Own

There's no monkey business about it. If you enter Northrop you must wear a security badge at all times on the property. And that goes for monkeys as well as people, according to Bob Fox, manager of Security and Protection Services, Aircraft Division.

So when a smiling little monkey walked right through Gate 10 without a badge, security officers, headed by Lt. Ed Griefnow, set off in pursuit.

That is when the monkey-shines started.

The little ape charged across the NCL parking lot, darted into the Environmental Laboratory,

Rides and Riders

Rides Wanted

7:30 a.m. — 4:12 p.m.

Santa Monica Blvd. & Barry, Santa Monica. Lucia Liao, Aircraft ext. 1456, 213-826-1080.
Coast Hwy. & Balboa Blvd., Newport Beach. Deborah A. Elliott, Aircraft ext. 2586, 714-673-0321.

Wanted to Buy

Apt, 1-bdrm. co-op. 213-327-6373. D
Boat Trailer, 12" or larger wheels for 14' boat. 213-881-2604. D
Vacuum Cleaner, used, in good working condition. 213-320-2697. D
Cement Mixer, portable elec., 2 1/2 to 5 cu. ft. 213-679-4434. D
Rifle, 22 Hornet or .222 Remington, in good condition. 213-675-5258. D
Trains, Lionel, elec. Box 805. D

Rentals Offered

Vacation Cabins, Idyllwild, 1 & 2 bdrm., stream, patio, f/place, \$30-\$40. w/end, \$70-90 wk. 213-868-8040. G
House, 3-bdrm., family rm., dishwasher, f/place, bitins, cpts., dps., \$225 mo. 213-679-4400, 213-675-3830. G
Cabin, Moonridge, Big Bear Lake, 3-bdrm., 2 baths, f/place, completely furn., family only, \$125 wk., \$50 w/end. 213-326-7232. G
Cabin, Lake Arrowhead, No. Shore, 200 feet from lake, pvt. dock, \$120 wk., \$200 2 wks. 213-375-2255. G
Apt, 2-bdrm., 2 baths, unfurn., all elec., near Del Amo Shopping Center, Torrance, adults only, no pets, \$185 mo. 213-326-4944. G
House, Bass Lake, \$150 wk., \$45 w/end. 213-374-3702. G
Cabin, Green Valley Lake, \$65 wk., \$45 w/end. 213-320-2002. G
Cabin, Big Bear City, sleeps 8, bath, \$90 wk., \$45 w/end. 213-320-6486. G
House, Gardena area, 2-bdrm., bath., lge. fenced yd., sep. 2-car gar., avail. May 3, \$190 mo. 213-329-2556. G
Cabins, Lake Gregory & Crestline, make reservations early May to Sept., sleeps 6, \$65 wk. 213-821-8150. G
House, 2-bdrm., unfurn., cpts., dps., stove, refrig., lge. gar. & yard, gardener, pool privileges, near El Camino, 1 child OK, \$210. 213-329-5986. G
Store & living quarters, 1/2 hr. from Northrop Hawthorne, \$100 mo. lease. 213-589-4285. G
Apt, lge., unfurn., 2-bdrm., cpts., dps., b/fast bar, air cond., pool, adults, no pets, \$155 mo. 213-325-2512. G

Rentals Wanted

House, 1-bdrm., or duplex, around \$135 mo., furn. or unfurn., fenced back yard, stove & refrig., must allow dog. 213-641-9013. H

Child Care

Child Care Offered, my home, Gardena area, lge. fenced play area, hot lunches, other children. 213-327-2305. I

Child Care Offered, my home, 5 min. from Northrop, breakfast & lunch, fenced yd. w/ play equipment, all ages. 213-644-5395. I

Lost

Pup, Irish Setter, vicinity of 139th St. & Washington, in Hawthorne, on April 6, dusty brown, 14" high, 10 wks. old, answers to Sundance, reward. 213-644-3216, 213-675-9500. J

Personals

We wish to express our sincere appreciation for the cards, flowers, phone calls, gifts & generous assistance to NRC, Plant Maintenance & Construction, received during the illness & services held in memory of Fay B. Gates. ETHEL GATES, SANDRA CALLENY & FAMILY, TED GATES & FAMILY. L

For Sale or Trade

Chevrolet, 1967 Bel Air, 2-dr., V-8, standard trans., \$1,100 or trade for chopper H.D. 714-842-5281. M
Rims, 15x8" deep chrome, wide tires for Chev. or GMC truck, used 1 mo., \$150 or trade for good breed sporting dog w/papers, prefer Irish setter. 213-430-7680. M
Organ, Estey, elec., \$65 or trade for super 8 projector. 213-675-6020. M
Sailboat, Cal-20, normal equipment, \$2,500 or will accept Lido-14 as trade in. 213-542-6320. M

and climbed upon some pipe where he sat laughing at his pursuers.

"We got him down from there and he went to the tunnel in the Environmental Lab," Lt. Griefnow said. "There he continued to make a monkey of us, charging up and down and around and around."

"Someone came up with the idea of putting a noose on a pole and slipping over the monkey's head. He had a lot of fun with that — even if we didn't. Once he even slipped the noose over his head and jerked it off before we could tighten it."

Finally the monkey went flying around the room, leaping

from one place to another like a miniature Tarzan. He grabbed the door in one rush and found that it would open. He charged out, leaped the fence and was last seen dodging traffic on Broadway.

While the monkey may just have been brushing something from his face, several of his pursuers claim that it looked as if he was thumbing his nose at them as he left.

"He was real friendly and not vicious at all," Lt. Griefnow reported. "He kept laughing and seemed to enjoy the chase. We'd like to have him come back — provided he shows up with a badge like the rest of us."



LET'S PLAY SLIP THE NOOSE
Young monkey liked to slip noose on and off his neck.

EDITOR'S NOTEBOOK

Ventura Division personnel are pondering the fact they may be some sort of jinx for NASA astronauts who visit them to see where the Apollo Earth Landing Systems are produced. If they are, it is all unintentional, of course.

Of the four astronauts who have visited, one (Richard Gordon) has been on a space flight and another (Alfred Worden) is scheduled as an Apollo 15 crewman in July. Here's where the jinx comes in. These astronauts are involved in moon missions, but don't get to walk on the moon.

Astronaut Gordon piloted the command module in Apollo 12 while his two fellow crewmen were the second party of earthmen to walk on the lunar surface. The same fate awaits Astronaut Worden—he'll orbit while the others moon walk.

The other two astronauts to visit Ventura were Charles Bassett, who was killed in an aircraft crash, and Dr. Joe Allen, yet to be selected for space flight.

* * *

Through the years we have heard of Northrop aircraft serving many purposes, all with distinction. Now comes Marion Scafani of the Electro-Mechanical Division with a new one, at least to us. Mrs. Scafani reports they are a good cure for "homesickness."

Mrs. Scafani reports that her son, Sgt. Louis Scafani, USAF, was a bit homesick when he reported for duty at Reese AFB, Tex. Then he suddenly found the base well-equipped with Northrop T-38 trainers and the logistics center abounding in spares and support items bearing the Northrop name. This familiar name in a strange place cured his homesickness.

Sgt. Scafani was just seven years old when his mother joined the company and for the next 14 years he heard her talk of her job and Northrop products. "Too, I don't think we ever missed an NRC Children's Christmas Party when Louis was a youngster," Mrs. Scafani says. Sgt. Scafani works in Air Force Supply and proudly wrote his mother, who is a Purchasing secretary: "Mother, we are now in the same kind of work."

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ATTENDANCE AWARD IS LUNCH WITH THE BOSS

From left, Jerry Brower, Joe Pulver, Fred Steiger, Carl Emerick, Russ Thomas, John Evans, George Gaudry.

Attendance Awards: Taddeo And Brower Combine for Almost 24 Perfect Years

Regardless of the rumors about them, Jake Taddeo and Jerry Brower, of Transportation at the Ventura Division, do not go around toasting each other with mineral water — "Here's to Your Health!"

And they are healthy. Mr. Taddeo has missed just one day of work in the past 13 years and Mr. Brower has a flawless attendance record for the past 11

years at Northrop.

What's their secret? They can't put their finger on it. But it isn't something new.

"Even when I was in the National Guard in New York, back in the 30's, I never missed a meeting," says Mr. Taddeo. "Not one."

For Jerry Brower, his attendance habits began as a youngster in Nebraska. "I probably didn't

miss five days of school in all of my school time. And that was in snow and everything else," he noted.

These two men, two others from Transportation and four other Ventura personnel recently received certificates for perfect attendance for the year 1970.

The other two in Transportation are George Gaudry and Hugh Wilson.

Also on the Honor Roll are Norman Crate, Vendor Control and Metrology Inspection; Lawrence Kruger, Financial Management; Fred Steiger, Metal Shop; and Russell Thomas, Material Ordering and Inventory.

Each of the Honor Roll recipients received a special luncheon with the vice president of their organization as an added reward for perfect attendance.

Receiving Honorable Mention Citations for missing one day of work or less for 1970 were:

John Findley, Bill Stewart, Marian Leppert, JoAnn Rutten, Leon Barnes, Harold Hawley, George Hensley, Ted Hildebrand, Marvin Hinze and William Merrick.

Also, Harold Schuman, Marvin Shered, Sam Trinkle and Bill Umbenhauer.



BUSY, THEY ATE LUNCH LATER

Transportation's Jake Taddeo, left, and Hugh Wilson.

Loan of President Leaves Rec Club in a Quandary

Will the real president of the Ventura Division Recreation Club please stand up?

That's the question facing the Rec Club these days as a gap in the bylaws has left the group without a president.

"The bylaws say that if the president is transferred or termi-

nated then the office shall be declared vacant and a new election held for the job," explains Vice President Bill Umbenhauer.

But the problem is that President Bob Calhoon was neither transferred nor terminated — he was loaned to the Aircraft Division for work on the F-5E.

"Since the bylaws say the vice president shall assume the duties of the president in the absence of the president then that's what we're doing," noted Mr. Umbenhauer.

While Mr. Umbenhauer doesn't mind shouldering the additional responsibility, his task is more complicated because of the bylaws problem.

And if it sounds like he's humming "Won't You Come Home, Bill Bailey," the lyrics of the familiar song may be modified to "Won't You Come Home, Bob Calhoon."

OMEGA RECEIVER SET FOR SUB TESTS

Northrop's Electronics Division has received a contract to modify computer software of the AN/ARN-99 Airborne Omega radio navigation receiver for use aboard submarines.

Under the terms of the U.S. Naval Electronics Command contract, Northrop will modify the computer program and conduct surface and underwater cruise tests in June.

REST, THEN TRAVEL

Merna Childs Will Retire

Relaxing, travel and a visit with her sister in Northern California are on the schedule for Merna Childs when she retires June 1 after 16 years with Northrop.

Mrs. Childs, who does packing and wrapping in Shipping, says that first, though, she wants to recover from back injuries suffered in a November automobile mishap.



Mrs. Childs

"I'm sure I'll spend some time with my only son, Rocky, and his family, too," says the woman

who joined Radioplane in 1955. She has two grandchildren, Greg, 8, and Julie, 3, and is very proud of them.

When she is fully fit to travel she plans on visiting her sister in Paradise, Calif. and then tour the East Coast in a motor coach with friends.

Mrs. Childs began in the Transportation Department and then spent 13 years on the target assembly line before transferring back to Transportation and Shipping three years ago.

Her late husband, Raymond Childs, worked nearly a dozen years for Northrop at the Aircraft Division and the Ventura Division.

VENTURA DIVISION RECREATION CLUB ROUND-UP

Southern California's chamber of commerce got a black eye, as far as Ventura Division Golf Club members are concerned when it comes to the weekend of April 17.

Ventura golfers playing the Valencia Golf Course near Newhall looked forward to another sunny, warm weekend but instead were pelted with hail, rain, and icy winds. "A little bit of everything," lamented one player.

Through it all, though, Bob Jones emerged with a 74 to win the A Flight with Norm Curtis shooting 76 for second and Warren Sparks squeaking in for third with 80.10 over Roy Shelley's 80.20.

John Breneman had a 77 to top the B Flight as Ardon McKinley took second with a 79 and John Brazel's 84 was good enough for third. There was no C Flight.

Lois Sheridan won the ladies flight with a 97. Second place went to Clara Curtis, 100, and third was Sue Wiscaver at 101.

Closest to the pin on the

three-par holes were Mr. Sparks, Mr. Curtis and Buck Gilmore. Glen Myers hit the longest drive of the day.

The win put Mr. Jones ahead of Mr. Sparks in the over-all point standings after four tournaments, 180 to 155. Next are Mr. Gilmore and Mr. Shelley, 140 each, and Mark Peterson, 135, among the leaders.

Mrs. Sheridan still has a strong lead over Mrs. Curtis in the ladies division, 220 to 155. Jaddis Martin is a distant third among the competitors with 90 points.



High rollers at the Ventura Division will be trying their luck in Las Vegas the weekend of June 25 in a special "Las Vegas Weekend" under the auspices of the Ventura Division Recreation Club.

The \$40 per person cost includes round-trip charter bus service, a luxurious room with television at the Mint Hotel and Casino, a breakfast, prime rib

dinner, cocktail, baggage handling and all taxes and tips.

The bus will leave the Ventura Division at 5:30 p.m. Friday, June 25, stop at the Balboa Medical Center in Sherman Oaks at 6:15 p.m. and then go straight to Las Vegas. Return time will be 9-10 p.m. Sunday.

Reservations can be obtained by calling Rec Club Secretary Kathy Miller on ext. 435 Mondays, Thursdays and Fridays. A \$20 deposit is due May 12 with the other \$20 due June 4.



The Ventura Division is fielding two teams in the Rancho Conejo Golf League which swings into action this week at Los Robles Greens, Thousand Oaks.

Northrop Team One players are Ron Aitken, Ken Brubaker, Al Hahn, Bob Jones, Sam Marcantonio, Joe Sliakis, Warren Sparks and Dick Warner.

On the Northrop Team Two are Ben Biene, Herb Covell,

Bob Feakins, Andy Hopper, Dick Kipp, Harry Parker, Jerry Riley and John Roach. Grady Means is an alternate.

Ventura's two teams captured second and third places last year after a Northrop team won the 18-week-long league the year before. Matches are played Tuesday evenings through Aug. 24.



Tickets for Northrop Night at Disneyland will be available every day of the week beginning May 4, according to Rec Club Vice President Bill Umbenhauer.

The Rec Club office in the Engineering Building sells the tickets from 11 a.m. to 1 p.m. on Mondays, Thursdays and Fridays.

Tuesdays and Wednesdays various Rec Club members will be selling the \$4 ducats for the May 21 event in the cafeteria, mall, or Manufacturing lobby during lunch hours.

Northrop Night at Disneyland is an annual event with park use

strictly limited to Northrop personnel and their families. It takes place during the evening and the \$4 per person ticket covers everything except food, refreshments and shooting galleries.



Ventura Division softball players are now practicing every Tuesday evening at Newbury Park High School as the Rec Club-sponsored club gets ready for Conejo Recreation and Park District league play.

Pre-league play starts May 17 with competition in two leagues beginning May 31. Last year's Northrop team finished second in the B League.

"We're looking for ballplayers," said manager Claude Vincelette. Bats, balls and uniforms are provided by the Rec Club with players required to bring their own gloves.

Mr. Vincelette invites prospective players to call him at ext. 407 for further information.

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GETTING READY FOR CAMPAIGN

U.S. Savings Bonds coordinator Frank Tipton and secretary Tanet Palmer.

He Cuts Drilling Time in 747, Earns Suggestion Award

Why use three drills when one drill will do the job? That's what Randy Jones thought; so he figured out a way to cut two hours of drilling time off each 747 ship-set and earned \$133 in the Ventura Division's Suggestion Awards Program.

"Actually we were drilling a hole nearly an inch in diameter with two drills and a reamer," he explained. "Now, with a power feed step drill it's much faster."



Mr. Jones

What made him think of the idea? "I just got tired of doing the job with two drills and then a reamer. I figured there was an easier way and there was," said the man who has recently transferred to the Sheet Metal Fabrication branch.

Charles Stokes earned a \$55 award for suggesting a new bonding applicator and Wilbur Leeds picked up \$29 for recommending a new material for spraying 747 panels.

Paul Barbakow earned \$20 for a streamlining suggestion in 747 shipping and Bill Ashley earned \$14 for still another idea.

Receiving \$10 each for other cost-cutting suggestions were Ron Lischak and Marvin Moore.

NAMED CHAIRMAN

Frank Tipton, assistant to the general manager at the Ventura Division, has been elected chairman of the Conejo Valley Industrial Association.

Mr. Tipton represents Northrop in the association which is composed of eight industrial firms in the Rancho Conejo Industrial Park of Newbury Park.

Last year he was secretary-treasurer of the group.

Bond Drive To Kick Off This Week

Once more our government is asking for help in a manner permitting every citizen to respond in good conscience according to their financial means.

This year the theme of the U.S. Savings Bonds Campaign is most appropriately entitled, "Take Stock In America."

In keeping with the theme Northrop Corporation is again positively responding to the government's request by contacting personnel not presently availing themselves of the opportunity to authorize a payroll deduction for U.S. Savings Bonds.

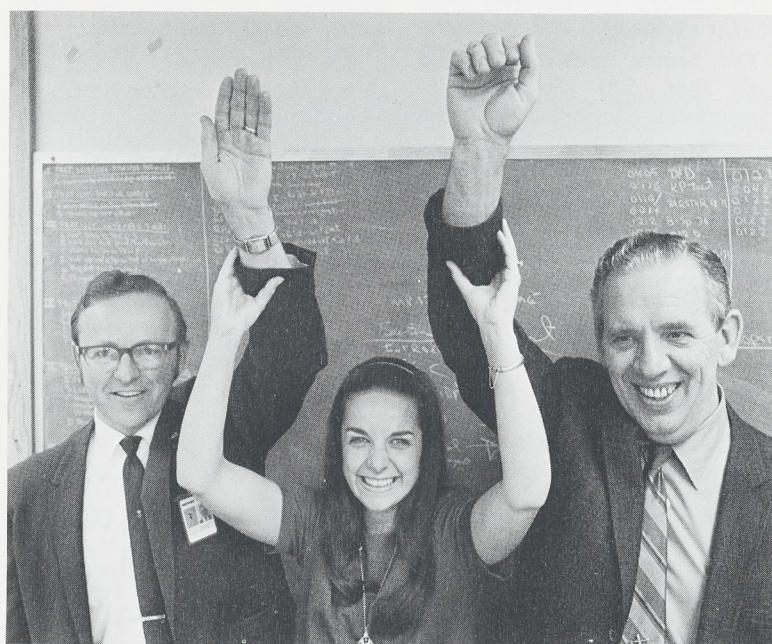
"Northrop personnel have strongly supported this program over the years," noted Frank Tipton, campaign coordinator for the Ventura Division. Eighty-eight per cent of all employees participated last year, he said.

This division's coordinator will be assisted by John Roach, Bob Jennings, Rolland Lemm, Dave Coe, Harvey Linebarier, Bertha Rose, Bob Pepper, Jack Hagedorn, Clyde Corder and Gladys Ellison.

The associate coordinators will attempt to contact each employee not currently participating and inform him of the values in the U.S. Savings Bonds program. Minimum deduction is 50 cents.

Personnel who have already authorized a payroll deduction are encouraged to increase their deduction if possible; however, there will be no individual contacts during the May 14-28 campaign in this category.

An added incentive to participation is a one-half per cent interest increase in the Series E and H bonds purchased after June 1, 1970. Assuming the one-half per cent bonus continues, those bonds would yield a 5½ per cent return, if held to maturity.



BETTY DINO BOOSTS THE WINNERS

Forrest Godfrey, left, and Bud Hall won school trustee elections.

Forrest Godfrey, Bud Hall Triumph in School Election

One Ventura Division man has been elected to an elementary school district board of trustees and another was re-elected in the April 20 elections.

Forrest Godfrey, a contracts administrator in the Mark 30 program, was the top vote-getter of 10 candidates seeking two seats on the board of the Pleasant Valley School District in Camarillo.

Duane W. (Bud) Hall, a storekeeper at Ventura, was re-elected to the Timber School District Board in Newbury Park after nine years of service.

A third Venturan, Rex Fairless, manager of Industrial Relations and Administration, is a member of the Ventura County Board of Education.

Mr. Godfrey's victory was overwhelming.

In his first try at elective office he amassed nearly twice as many votes as the next candidate. Mr. Godfrey, who has two children attending school in the district, ran on a platform stressing administrative efficiency and quality education.

As an incumbent, Mr. Hall emphasized quality education and experience in his campaign. "The important thing is the total team," Mr. Hall explained, "the community, the board of trustees, the staff and the teachers."

Mr. Hall is a past-president of the Timber Board, past-president of the Ventura County School Board Assn., a statewide director of the California School Boards Assn., and member of the CSBA's Committee For Adult and Vocational Education.

HEADED APOLLO PROGRAM

Wes Steyer Retires After 25 Years

The man who guided the engineering, development and production of the Apollo Earth Landing System at the Ventura



FAREWELL WISHES

Wes Steyer at his retirement party.

Division for 6½ years ended a 25-year Northrop career with retirement April 30.

Wesley A. (Wes) Steyer, whose latest post was manager of the Support Operations Department, joined Northrop at the Aircraft Division in 1945.

His initial work at the Aircraft Division as a research analyst and designer on such programs as the B-49, F-15, SM-62 and F-89 aircraft led to responsibilities as a project engineer for major Northrop subcontract work on Boeing aircraft.

Transferring to the Ventura Division in 1962, Mr. Steyer was appointed assistant to the vice president, Engineering, where he investigated management problems, recommended action and implemented management decisions.

His technical expertise and proven management ability resulted in the Apollo job. In reflecting on his Northrop career, Mr. Steyer termed the Apollo experience

his most satisfying.

As Apollo program manager he provided single point control for the customer and exercised authority over all assigned program personnel in participating functional organizations through department managers.

He had the same authority over other space recovery programs, such as the Analysis of Apollo Spacecraft Parachutes, Gemini Logistics Spacecraft Systems Study; Parawing Development; and the B-58 Recovery System parachute production.

Mr. Steyer will be as busy in his retirement as he was working for Northrop.

He said he has a "real backlog of work" in the garden of his Hidden Hills home where he has lived for 15 years, plans to renew his interest in the area's civic activities, reactivate his sports and hobbies and travel to Tucson and San Diego to visit his children.

Simplicity Pays Off



INGENUITY was the answer for Northrop Data Processing personnel at the Ventura Division who had a problem with static electricity messing up print-out paper flows. They got an inexpensive vaporizer like the one mothers use for children with stuffy noses. Cost? Less than \$15.

Page Using Logistical Ingenuity In Iranian Communication Project

If Page Communications Engineers was looking for a real challenge when it decided to construct a massive telecommunications network in Iran then it got what it expected.

The system involves building more than 500 separate telecommunications stations and the logistical challenge in getting the necessary 100,000 items to their proper destinations is a whopping one.

Page, a Northrop subsidiary, is head of an international consortium tackling the \$175 million project billed as the largest telecommunications project undertaken under a single contract anywhere in the world.

The system will reach throughout Iran, from the islands of the Persian Gulf through thousands of miles of Iranian mountains

and deserts to the Caspian Sea. When completed it will interconnect 60 major urban centers, hundreds of state and private installations and hundreds more towns, villages and hamlets.

For a two-month period this spring about \$1 million worth of sophisticated electronic equipment came into Iran by sea, road, rail and air every 48 hours.

Once the equipment arrived it was processed into two central warehouses and then dispatched to 10 area distribution centers. In the 10 centers the material is broken down for direction to sites served by each center.

Small shipments are trucked—

in many cases over hundreds of miles of new roads built specifically to provide access to the remote sites.

In other cases landing craft put their shipments ashore on the Persian Gulf while helicopters are called upon to deliver materials to the most inaccessible mountain sites.

Constructing one of the world's foremost voice, vision and data transmission systems involves a lot more than miscellaneous radio tubes and construction materials.

The huge towers that will rise above some of the sites will be more than twice the height of the tallest skyscrapers in Tehran, the country's capital.

Making all this movement of materials easier is a system of radio-telephone links connecting each distribution center with its depots. Assuring proper action at the international level is a teletype system.

After all, if a communications firm such as Northrop Page is going to do the job right, it must know how to use instant communications in its own operations. And Page does just that.

Northrop Studies Wilcox Purchase

Northrop Corporation has begun talks with American Standard, Inc., looking toward the possible acquisition of Wilcox Electric of Kansas City, Mo., and its international sales affiliate, World Wide Wilcox of McLean, Va.

Both companies are wholly owned by American Standard.

The transaction would be in line with Northrop's program for increasing its commercial and non-military business. Wilcox specializes in electronic navigation aids for aviation and manufactures a number of products which are sold throughout the world to commercial and government users.

DAY AT THE RACES

Tickets for NRC's annual "Day at the Races" set for Hollywood Park Saturday, June 26, are now available through Northrop ticket outlets.

Some 300 reservations have been made and tickets for them are being offered on a first-come, first-served basis. The \$6.25 per ticket price covers admission to the clubhouse, a reserved clubhouse seat and a buffet luncheon, served from 11:30 a.m. to 1:30 p.m.

Get Tickets Now For Big Night At Disneyland

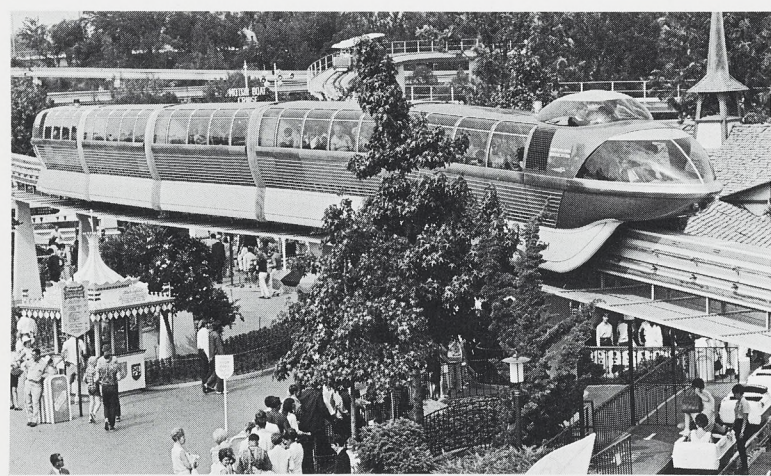
All the roads will be "happy roads" next week as they converge on the Magic Kingdom for Northrop's Night at Disneyland.

Saturday, May 22, is the date. The hours are 8:30 p.m. to 1:30 a.m.

During those hours everything is reserved exclusively for Northrop families. And everything is "on the house" so to speak in that one price—\$4 per person—covers everything except, of course, food, drink, souvenirs and shooting galleries.

But all of the rides, all of the attractions, the special shows and features will be wide open for use. Frontierland, Tomorrowland, Fantasyland, Adventureland, Main Street, U.S.A. and New Orleans Square will be in full swing. Take a ride, see a show or dance to one of several bands playing just for you.

This year the \$4 ticket includes parking, admission and unlimited use of facilities. Personnel Activities outlets throughout Northrop are offering them for sale now.



WAITING FOR YOU AT DISNEYLAND

New monorail trains are among attractions available for Northrop families May 22 at Northrop Night at Disneyland.

Know Your Industry

With a rate of only 0.116 fatalities per 100,000 aircraft hours flown, 1970 was the safest year in U.S. commercial aviation history. Scheduled passenger operations of certificated carriers recorded no fatalities in the U.S. and only two passenger fatalities in international service. There were 60,485 transportation deaths in the United States. Of 54,895 highway fatalities, 45,095 came from driver accidents and 9,800 were pedestrians. Marine accidents killed 1,807; rail/highway crossing accidents killed 1,505; and aviation fatalities were listed as 1,415, again none in scheduled airline flights. Railroad accidents killed 713 people and 21 died as a result of pipeline accidents.



DON'T MISS FELLOWS

Torrance princess watches Exhibition Drill Team at Edwards AFB. The Edwards team will compete at the Torrance Armed Forces Day Parade, May 15.

Torrance Parade, Birthday Celebration Is This Week

"Defense, Discovery and Development" will be the theme of Northrop Corporation's float at the twelfth annual Armed Forces Day Parade and Celebration in Torrance, May 14 and 15.

The float will depict Northrop's worldwide operations through a large globe and models of the T-38 and F-5 aircraft.

The Armed Forces Day festivities in Torrance will begin at 6:30 p.m., May 14, when military and industry exhibits will open to the public at the Torrance Civic Center until 9:30 p.m. and again on Saturday from 10 a.m. to 5 p.m.

That same evening, a gigantic fireworks display heralding the start of Armed Forces Day and the City of Torrance's 50th Anniversary Celebration will commence at 8:30 p.m. at the Torrance High School Stadium.

The parade, which this year will honor POW-MIA family representatives of the 1,600 or

more Americans who are missing in action or are prisoners in Southeast Asia, will begin promptly at 10 a.m. the following morning, May 15.

The parade route is along Torrance Boulevard, between the intersections of Sartori Street and Madrona Avenue.

Rated as the largest civic-sponsored military celebration in the nation, the annual observance at Torrance will follow the "Forces for Freedom" concept as expressed by President Nixon.

ACCOUNTANTS TAB NORTHROP MEN

The president and three other members of the 1971-72 board of directors of the National Association of Accountants, Conejo Valley Chapter, are Northrop men.

Dan Cashier, Corporate director of Business Management Services, is the president-elect of the chapter as it enters its second year of existence. He is also a past-president of the NAA's San Fernando Valley chapter.

Three of the other new officers who take office with Mr. Cashier on July 1 are members of the Ventura Division's Financial Management department.

The men and their offices are Eldie Lorentson, vice president, meetings - membership; Denny Sherwin, director (meetings); and Dick Tupper, director (special activities).

Gen. John D. Ryan

Gen. John D. Ryan To Lead Torrance Armed Forces Fete

General John D. Ryan, chief of staff of the U.S. Air Force, will serve as grand marshal and reviewing officer at the Torrance Armed Forces Day Parade and Celebration.

General Ryan is a former commander of the Strategic Air Command and was commander of the Pacific Air Forces from February 1967 to August 1968.

A native of Iowa, the 55-year-old four-star general has served his country for more than three decades. He was graduated in 1938 from the U.S. Military Academy at West Point where he was on Army's football team.

During World War II, General Ryan served as commander of the Second Bombing Group in Italy, and as operations officer of the Fifth Bombing Wing, Fifteenth Air Force, Italy.

He spent the post-war years helping advance bombing techniques and weapons, including service at the atomic weapons tests at Bikini Atoll in 1946.

General Ryan's decorations are numerous, including four Distinguished Service Medals, two Distinguished Flying Crosses, a Purple Heart for wounds received during action in Italy, and two Silver Stars for gallantry in combat.

COLLIER TROPHY

The Boeing Company has been awarded the Robert J. Collier Trophy for introduction of the 747 superjet into commercial service.

The trophy is awarded annually by the National Aeronautic Association "for the greatest achievement in aeronautics or astronautics in America." Traditionally, it has been presented by the President of the United States.

Hallicrafters Radio Equipment May Be Bought At Reduced Rates In-Plant

A large variety of Hallicrafters amateur receivers are currently available through Northrop Personnel Activities offices at greatly reduced prices. Prices recently posted are considerably below former employee costs.

An example of the current price reductions is the popular S-120A model with a suggested retail price of \$79.95 and a former regular employee cost of \$41.44 which is now available to Northrop employees at \$29.95.

Other models, which include, S-214, S-240, CR-44A, CRX-101, CRX-106, CRX-107, CRX-103A, CRX-104, and CRX-105A, are also available at similar reductions.

These models are in stock at

Employee Relations, Electro-Mechanical Division. Model samples of six of these sets are on display at the Aircraft Division Personnel Activities, and some of the models are displayed at the Electronics Division Personnel Activities at both Palos Verdes and the Johnson Building.

Orders for the sets are accepted by all Southern California Personnel Activities offices and deliveries are then made from the inventory at Anaheim, insuring prompt delivery.

In addition to the receivers listed, which are kept in stock, 10 additional set models may be obtained on special order. These, however, must be ordered from the factory.

Riding Rocket Sleds Beats Highway Driving, Dr. Stapp Says

Dr. John P. Stapp would rather be rocketing along in a sled at 600 miles an hour than driving an automobile on the highway.

"It's safer to ride that sled than to ride cars," he declares.

As many Northrop old-timers will recall, Dr. Stapp pioneered the Air Force test program which uses rocket-powered sleds to determine how much stress the human body can take.

Since 1947, more than 9,000 of these tests have been run at Holloman and Edwards Air Force Bases. Dr. Stapp himself rode a Northrop-built sled 29 times, at speeds up to 632 miles an hour.

Not only have these tests gathered invaluable data for the manned space program and supersonic aircraft crash survival, but they have proven a big help in the effort to improve highway safety, Dr. Stapp's main area of interest in recent years.

Dr. Stapp, who retired as an Air Force colonel last August 1, turned his attention to the auto accident problem late in 1953, when assigned to the Air Force School of Aviation Medicine. The Air Force was concerned because in the San Antonio, Tex., area alone it lost 49 airmen in

highway crashes in one year — more than it was losing in the air.

"While we were working on supersonic escape from aircraft and aircraft survival, it became evident that the same facts we were developing would relate to designing automobile safety," Dr. Stapp recalls. "In fact the same principles have been following in designing seat belts and shoulder straps for autos."

"All this business in restraints still uses that data gathered on sleds with human volunteers from 1947 to the present."

Strictly speaking Dr. Stapp's auto program wasn't authorized at the start, but he managed to liberate some junked autos which he equipped with dummies and had towed or pushed into obstacles to test crash effects. Starting in 1955, he began holding three-day annual demonstrations for the auto industry, in which autos driven at varying speeds would be crashed into a 70,000-pound sand-filled barrier.

In 1967, The Air Force "loaned" Col. Stapp to the new National Highway Safety Bureau, now the National Traffic Safety Administration, as chief medical

scientist. For his work there, President Nixon awarded him the government's Distinguished Service Medal, "for exceptionally meritorious service in a duty of great responsibility."

Dr. Stapp describes his role at the Traffic Safety Administration as that of "scientific troubleshooter." Besides applying his knowledge about restraining devices, he has helped rewrite federal physical standards for bus and truck drivers (he is an M.D. as well as a Ph.D.)—helped set safety standards to assure that railroad employees don't work too long under stress — and directed research into devices such as auto air bags, better bumpers, and controlling drunk drivers.

Recognition

Secretary of Transportation John A. Volpe presented the Distinguished Service Medal to Dr. Stapp in a Washington ceremony last February 8, conveying the "grateful thanks" of President Nixon and the nation.

"His expertise has been of invaluable assistance to the department in the development of occupant protection and passenger restraint safety standards for both

the cars of the present and the future," Mr. Volpe said.

"His knowledge has aided us in developing specifications for our new experimental safety vehicles. And I am sure that he can take a large part of the credit for the fact that preliminary figures for 1970 highway deaths show a marked decrease — perhaps as

many as 1,400 fewer highway deaths last year than in 1969. This is the first really substantial decline since 1958.

"While these statistics are meaningful to all of us how much more significant they must be to a man who has devoted his life to an endeavor that has directly saved lives."



RECEIVING DISTINGUISHED SERVICE MEDAL
From left, Secretary John Volpe, Col. John Stapp, Mrs. Stapp, Lt. Gen. Alonzo Towner, surgeon general, USAF.

Historic Sled Program Holds Fond Memories for Northrop Men

Northrop personnel who worked with Col. John Stapp in his memorable rocket sled rides have vivid memories of the colonel and their associations with him at Edwards and Holloman Air Force Bases.

Colonel Stapp rode Northrop-built sleds and was assisted by Northrop crews in his work on deceleration tests to determine the effects of wind blast and G's on the human body. This work was essential in developing ejection seat systems for supersonic aircraft.

The Northrop program was under direction of George Nichols, who is now with JPL. Dr. Charles Lombard, now with the Electro-Mechanical Division's Support Operations Department, worked with the restraint systems and helmets for Colonel Stapp.

Jake Superata and Ralph Morgan, both still with the Aircraft Division, shared responsibility for the sled operations. Jack Mays, another still with the Aircraft Division, helped build the sled, mounted the slippers that fastened it to the track, and worked on

getting it operational.

Gordon Nelson, now at Palos Verdes, was project engineer, doing design development. Tom Casey, Aircraft Division, was supervisor of design. Others who worked on the project include, D. C. Watts, R. E. Hogan, D. J. Kuyper, J. T. Stewart, Julian Torbett, E. P. Shafer, Frank Pritchard, L. E. Pieper and Charles A. Clarke.

Northrop sled track operations began as a means of testing the Snark missile and grew into a test bed for a variety of operations. It utilized railroad track rails along which rockets pushed the sleds to high speeds.

The Stapp experiments to determine the effect of wind blast and deceleration on the human body were under direction of the U.S. Air Force's Aero-Medical Laboratory. Between 1947 and 1954, when Colonel Stapp made his last ride, Northrop technicians had aided him on 29 runs.

Setting New Mark

The most dramatic of the runs was the final one made by Colonel Stapp in December 1954 when he reached a speed of 632 miles per hour — 200 miles an hour faster than he had traveled before. The run was made at Holloman AFB after the program moved from Edwards AFB to the New Mexico site.

Jake Superata is one of those who still remembers the historic run. "The sled was pushed by nine rockets with 40,000 pounds of thrust," he recalls. "The sled accelerated for five seconds and then coasted one-half second before the waterbrake stopped it in less than one second. Colonel Stapp took 35 G's and was hit by 4,000 pounds of wind pressure. Yet he suffered only two black eyes and had several blood blisters caused by dust in the air."

Following the final run Colonel Stapp wrote Whitley C. Collins, then president of Northrop, saying:

"The safety and continued existence of the human subject on these runs depended entirely on the meticulous and methodical at-

tention and care given every detail of the operations of the sleds and related equipment. This required extraordinarily long hours and a large amount of overtime on the part of Northrop engineers and mechanics.

"Only men of the highest intelligence and skill, having a deep personal interest in the job and great pride in achieving enormously difficult goals by heroic efforts, made the performance of this experiment possible.

"I freely acknowledge that I literally entrusted my life for the 29th time to the brains and hands of Northrop engineers and mechanics with complete faith in their integrity and capabilities. Once more, they lived up to my expectations in every respect. They are a credit not only to your organization, but set an example for the entire aircraft industry."

Along with the dramatic memories, Northrop personnel have a few amusing ones. Cows from a nearby ranch kept breaking through the fence to drink from the water tanks. They had to be shooed off before the early runs could be made at Edwards.

Birds also were a problem at

both locations. For if the sled hit one during a run it could have meant total disaster. A "bird call" system was set up to broadcast noises to frighten them away until the run could be completed.

A motion picture, called "On the Threshold of Space," was made at Holloman AFB during the Northrop group's stay there and included many scenes of the sled operations.

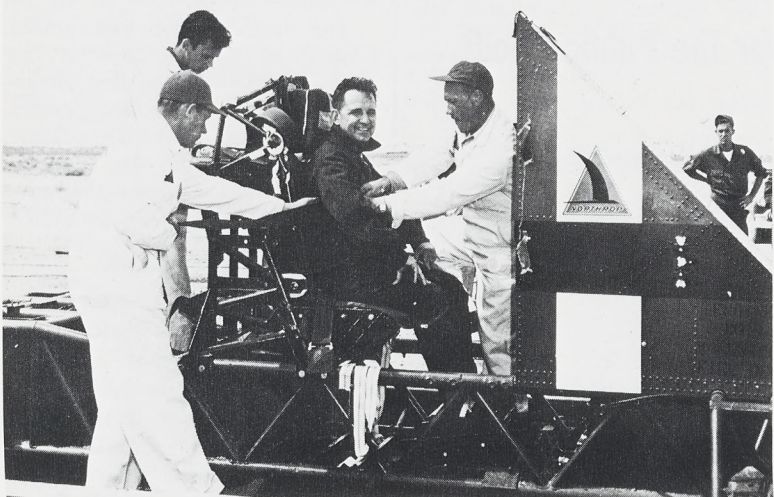
CARGO RECORD SET BY SAS 747

Scandinavian Airlines System has set a new transatlantic mark for cargo on a flight between New York and Copenhagen with a Boeing 747 superjet.

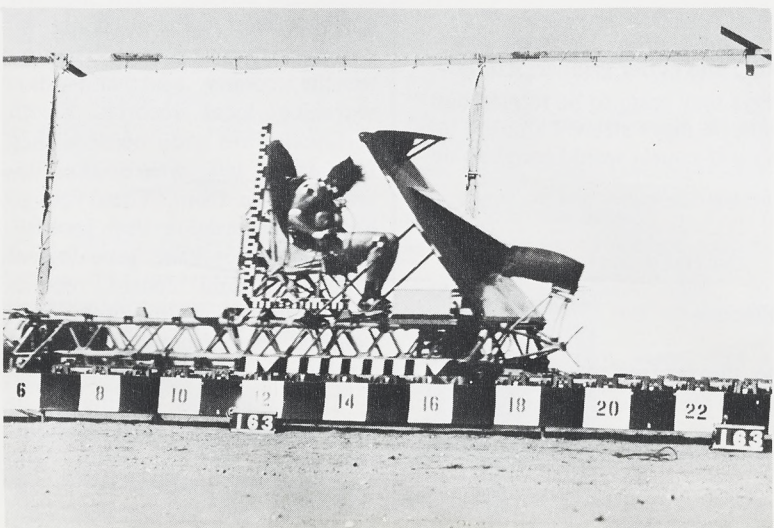
Eastbound across the North Atlantic, the carrier transported 53,000 pounds of cargo in addition to 281 passengers and their baggage. The total payload was 111,051 pounds.

The previous cargo record for the 747 was 33,317 carried across the Pacific earlier this year.

The Boeing Company has stated that a full 747 cargo load can pay the direct operating cost of the big airliner.



A LOT OF PREPARATION FOR A SHORT RIDE
During Holloman AFB windshield run, above, Col. Stapp gets an assist from Ralph Morgan, Jack Mays and Jake Superata. Below is an early deceleration run at Edwards AFB. Sled has just entered mechanical brake system and Col. Stapp is thrown forward against restraint devices.



PREPARING FOR 632 MPH SLED RUN
Clockwise around Col. Stapp are Tom Casey, Ralph Morgan, Jake Superata, Dr. Charles Lombard and George Nichols. Inscriptions are self-explanatory.

VARIETY OF PARTS

Larry Lyle's Sports Car A Hybrid

The son of a Ventura Division buyer is finally enjoying the full benefits of an ambitious do-it-yourself project.

After two years of labor and more than \$4,000 in parts investment, Larry Lyle, 24, son of Lowell Lyle, is driving the racy orange sports car he built in the garage of the Lyle home in Torrance.

"It's something I wanted to do for a long time so when I got back from Vietnam (Army) and enrolled at El Camino College I started building the car," explained the junior Lyle.

Using the frame and engine of an old Volkswagen, he bought an "Avenger GT" kit utilizing a fiberglass body and got busy. "He really started from scratch," commented his father.

The end result is a jazzy looking hybrid filled with parts from various cars. The instrument panel, for example, includes parts from a VW, Ford, Karmann

Ghia, "and anything that would fit and do the job" found at auto junkyards.

The basic VW frame had to be modified to meet the low-slung body requirements. The hardtop is just 41 inches above the road.

Larry did the necessary frame changing and all the other work—from installing the engine and instrument wiring to finished interior upholstery.

A Minor Problem

When it came time to have the vehicle properly licensed for the highway there was just one hurdle: the California Highway Patrol headlamp testing device couldn't fit over the custom-built lights which are set deep into the fender.

An alternate test solved that problem, though, and now Larry plans to take the car to an East Coast college where he will matriculate next fall. He has graduated from El Camino.

Although the car is not for sale, Larry estimates its market value in the \$3,000 to \$3,500 field.

Was it worth two years of time, energy, and occasional frustration? Would he do it all again? "Let's just say I'd rather drive the car than build it," he answered.

His Avenger GT was his first such project and probably the last—at least where homebuilt cars are concerned.

Cynthia Cherbak Garners Third Freedoms Award

Cynthia Cherbak, daughter of Victor A. Cherbak Jr. of the Corporate office, has become the nation's youngest three-time Freedoms Foundation Award winner.

Her third award was for an address titled "A Matter of Basic Humanity" made before the Beverly Hills Rotary Club. It earned for her the George Washington Medal in the public address category. Her talk was a plea for national unity to help prisoners of war in Vietnam.

Last year she won her second award for a talk, "Business and Industry—Do You Need a Press Agent?" made before the Northrop Aircraft Division Management Club. Her first award was for a talk before the Los Angeles Rotary Club in which she discussed her experiences in the Junior Achievement program.

Miss Cherbak, 21, graduates this June from Stanford University, just three years after her graduation from Hawthorne High School.



ANCESTRY-HUNTING SEARCH IN PROGRESS
Elsie Reusch found early relative was governor of Maine.

Elsie Reusch Fascinated By Genealogical Search

All Elsie Reusch of the Electro-Mechanical Division knew about her ancestors was that she must have had them. Then some genealogical material left by her mother started Mrs. Reusch on an ancestor-hunting search that has carried her all the way back to the seventeenth century.

"And I must say that I was surprised by what I found," Mrs. Reusch observed. "Also I was surprised at how easy it is to find information about one's forebearers if one goes to the right sources."

Her trail back through the years was through old census records, cemetery records, birth and death certificates, and other official documents.

One of the most fruitful sources of her research was the library of the Latter Day Saints in Salt Lake City. "You don't have to be

a member of the church to use the genealogical library there," Mrs. Reusch said. "The librarians have been extremely helpful and courteous. The library contains many census records, and although my family was not members of the church, I was able to trace back seven generations."

Census records, as those who remember the last census will recall, ask for a lot of information besides just names. As a result, Mr. Reusch was able to find out how many acres there were in her grandfather's farm, how many miles of fence he had and even the number of mules in his stable.

"An interesting thing was how the families migrated across the United States," she said. "My father's family began in West Virginia and moved to Iowa, Illinois, Kansas, and finally to Oklahoma where they participated in the Sooners land rush."

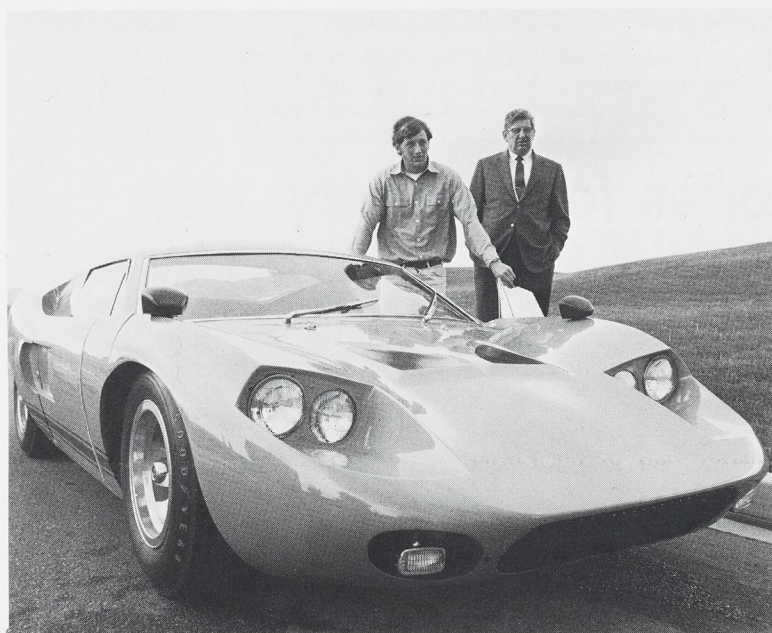
The farthest she had gotten back is to Edward Godfrey, an ancestor who was the first governor of Maine when the present state was still a British colony. Following his trail, she found a reference that claimed the governor was a "very arrogant man."

Many Surprises

"You never know what you'll turn up," Mrs. Reusch said. "I discovered that another ancestor, Thomas Godfrey, lived with Benjamin Franklin for a while. In his autobiography, Franklin said that Thomas really invented the mariner's quadrant which for a while was credited to an Englishman named Hadley."

For those who would like to trace their ancestors, Mrs. Reusch offers this advice, "First find out all you can right at home by writing to your relatives. Then go to the county seat and start searching local records. Death certificates are good because they frequently tell where the deceased came from. Then you go back to records in that locality. Many libraries have genealogical collections, and census records are available on microfilm at a nominal price from the National Archives in Washington."

"It is a lot like digging in an attic. You find so many fascinating things, and the history you learn in the process is so rewarding," Mrs. Reusch said.



WITH THE HOMEBUILT 'AVENGER GT'
Larry Lyle and his father, Lowell, on the grounds at Ventura.

WE ASKED THEM—Do You Think The Courts Are Too Lenient for The Public Good?



Gregg Brohaugh, engineer, Electronics:

I don't know. I think each case has to be treated individually. Sometimes our courts are too lenient and other times they are too strict. However, in all cases, we must remember that the judge's hands are tied due to antiquated laws.

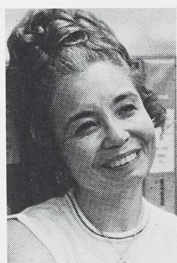


Russell A. Cully, engineering specialist, Electronics:

Yes. But I like to think it is because the courts want to make sure that an innocent person is never proven guilty through quick justice.

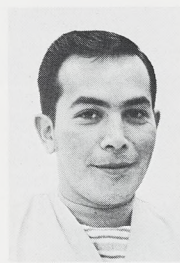
Mary Garcia, spray painter's helper, Ventura:

Definitely. They let all these kids get away with everything. They should be harder on them so they have more respect for the law.



Gary Williams, trim and drill operator, Ventura:

I think they could be a little harder when it comes to punishing people for their crimes. If they were harder it would cut down on crime and violence.



Joe Olvera, Reproduction, Aircraft:

Very definitely yes. When I was a kid, if you broke the law, they nailed you right then. Now it seems as if you can get away with just about anything.



Dottie Tompkins, tool and cutter grinder, Aircraft:

Well, in some ways they seem to be too lenient. I think courts should be more strict. I think a lot of trouble would stop if courts would toughen up some.

Esther Jones, industrial nurse, Electro-Mechanical:

Yes. I definitely do think the courts are too lenient. They no longer deter crime. How many cases do you see where criminals are released with short sentences and then return to repeat their crimes all over again?



Ed Steliga, Production specialist, Electro-Mechanical:

I sure do. Look what they do to the professional criminal class. They put them away for a short time and then let them out again. They seem to learn more criminal ways in prison and are worse when they get out again.



Classified

Classified ad service is provided free of charge to all Northrop personnel. Ads for agencies, commercial enterprises and private businesses are not accepted. The Northrop News reserves the right to edit or omit ads. Ads are limited to two items per person per issue; each category to be submitted on separate form. Deadline is noon Wednesday, one week before publication.

Automobiles For Sale

Falcon, 1963, Sprint convt., V-8 eng., \$350. 213-672-2434. A

Monte Carlo, 1970, p/s, d/brakes, rally whls., a/c, 300 h.p., radio, \$3,500. 213-861-0675. A

Chevrolet, 1964 Impala SS, air, \$500. 213-670-5084. A

Austin America, 1969, 2-dr., 68 h.p. eng., 4-spd., AM radio, new r/h, clutch & d/brakes, \$1,400. 213-649-0259. A

Pickup, 1965 Chevrolet, V-8, 8' bed, air, h.d. springs, custom cab, camper shell, trailer hitch, r/h, \$1,350. 714-836-0994. A

Rambler, 1964 Classic 770, 3-spd. on floor, new tires & brakes, eng. recently o/hauled, stereo tape deck, \$550. 213-291-5280. A

Hupmobile, 1935, mech. restored to new, needs upholstery & paint, \$700. 213-833-0347. A

Pickup Truck, Datsun, 1969, 1300 cc eng., \$1,144. 213-457-9186. A

Station Wagon, 1964 Chrysler Newport, 9-pass., auto., p/s, p/b, \$400. 714-892-7174. A

Datsun 2000, 1968 roadster, 5-spd. trans., 3 tops, \$1,395. 714-962-1143. A

A.T.V., lightweight, custom features, dual drive, 7 h.p., \$450. 213-375-8536. A

Buick, 1968 Riviera, orig. owner, many extras, new radials, \$2,900. 714-499-2461. A

Chevrolet, 1959 Bel Air, 2-dr., 6-cyl., auto., \$175. 213-378-4567. A

Station Wagon, 1968 Opel, new tires, clutch & batt., \$975. 213-370-8106. A

Pickup, 1967 Chevrolet, 283 V-8, 4-spd., \$265. 213-830-2548. A

Falcon, 1966, 4-dr., 6-cyl., stick shift, \$625. 714-639-2487. A

Chevrolet, 1962 Impala, new int., \$325. 213-833-9165. A

Porsche, 1959 coupe, 912 eng., lge. carb., AM-FM stereo cassette, many extras, \$3,500. 213-828-5338. A

Ranchero, 1965, 289, V-8, auto., a/c, r/h, \$750. 714-529-3689. A

Lincoln, 1964 Continental, full power, \$850. 213-631-4824. A

Renault, 1968, extras, \$1,100. 213-831-5304. A

Toyota, 1971 Corolla, fastback sedan, \$1,850. 213-823-8177. A

Galaxie, 1966, 61,000 mi., min. bid \$645; Charger, 1968, 72,000 mi., min. bid \$1,045. Credit Union ext. 1117. A

Pickup, 1966 Chev., ¾-ton, V-8, \$1,400. 213-675-1336. A

Cadillac, 1959 Coupe de Ville, 50,000 mi., fact. a/c, full power, \$490. 213-679-2119. A

Corvair, 1965 Corsa convt., 140 h.p., r/h, instruments & tach., 4-spd., stick shift, Corvette susp., \$345. 213-378-1658. A

Austin, 1960 850 mini, needs work, \$250. 714-826-9931. A

Corvair, 1962, 2-dr., auto., r/h, \$100. 213-596-6538. A

Fiat, 1969 Spider 124, 32,000 mi., new polyglas tires, \$2,500. 213-644-9365. A

Volkswagen, 1966 1600 TL fastback, r/h, \$800. 213-276-4384. A

Volkswagen, 1970 fastback, auto., AM-FM, \$2,200. 213-391-6521. A

T-Bird, 1964, full power, new batt. & tires, \$695. 213-423-1363. A

Toyota, 1968 Corona, 2-dr. h/top, 4-spd., r/h, 36,500 mi., \$1,099. 213-327-0883. A

Volkswagen, 1969, 22,000 mi., \$1,375. 213-867-7646. A

T-Bird, 1962 convt., good top, \$400. 213-375-9573. A

Volkswagen, 1968, new tires, AM-FM SW radio, 42,000 mi., \$1,295. 213-644-5463. A

Household Items For Sale

Washer, G.E., 2-cycle, \$35. 213-367-9644. B

Curtain, beige, valance & traverse rod, 12' long, \$15. 213-374-4703. B

Dryer, Frigidaire, gas, air-wash & wear, reg. setting, \$40. 213-323-6745. B

Bunk Beds, metal frames & ladder, turquoise blue, foam mattresses, convert. to 2 single beds, \$45. 213-375-7168. B

Dishwasher, G.E. auto., portable, \$70. 213-925-9776. B

Dryer, Kenmore elec., \$45; washer, Kenmore auto., needs bearing, \$50 both. 714-892-7174. B

Crib & mattress, \$15; bed frames, 2, expandable, metal, for twin or dble. size, \$2.50 ea. or \$4. 213-377-7156. B

Refrigerator, Westinghouse, 17 cu. ft., frost-free, \$95; dining room set, complete, w/ cabinet, \$85, many other items. 213-271-0258. B

Sectional, 3-pc. w/walnut tables, \$125. 213-679-1011. B

Rug, orange & gold, approx. 6x7, \$5. 213-530-0966. B

Coffee Table, Provincial, round, marble top, \$50; lamps, 2, white & gold, 3', \$25 pr. 213-671-6053. B

Household Items For Sale

Crib, mattress, bumper pad, \$22.50. 213-755-8917. B

Washer, Lady Kenmore, white, \$35. 213-534-4420. B

Dinette Set, 7-pc., Never-Mar expandable table, 6 chairs, \$30. 213-679-2710. B

Rug, multi-colored, braided, \$35; pole lamp, \$7. 213-676-5395. B

Dining Room Table & chairs, solid walnut, \$50. 213-532-1885. B

Kitchen Set, blue floral, table & 4 chairs, \$35. 213-373-5952. B

Vanity w/bench, chest of drwrs. & night stand, antique white, \$50; headboard, king size, padded, white, \$15. 213-372-5810. B

Stove, gas, \$45; refrigerator, elec., \$25. 213-671-9598. B

Dining Room Table & 6 chairs, black mahogany, \$200; lo-boy, 6', Chinese black, \$75. 213-674-1400. B

Playpen, crib & mattress, high chair, other items, \$50 or sell sep. 213-327-4585. B

Miscellaneous For Sale

Picture, 2'2"x4'4" walnut-framed desert scene in reds & oranges & browns, \$10; acreage, 10 acres, near Mt. Lassen National Pk., \$850 acre. 213-676-3050. C

Motorcycle, 1968 Suzuki X6 Scrambler, low mileage, \$425. 213-838-7523. C

Camera, Polaroid, mod. 330 w/flash, elec. eye, timer & case, \$65. 213-676-5417. C

Piano, Gulbrandsen spinet, ebony, \$500. 213-670-6970. C

Camper Shell for short bed truck, finished inside, 6'x6', 30" high, \$175. 213-370-1963. C

Motorcycle, 1970 Yamaha, 175 cc Enduro, been used on street only, \$500. 213-329-4200. C

Camper, ½ cabover Globe, stove, ice box, has boot for 1963 Ford pickup, \$600; bunnies, 6 wks. old, 2 does & buck, giant Flemish, \$1.25 ea. 213-370-0315. C

Venta-Hood, 43"x22", copper, 2 motors, \$45. 213-672-1716. C

Acreage, 5 acres, Hwy. 18 in Apple Valley, 10% dn., \$50 mo. at 6.5% interest, \$5,500. 213-327-4356. C

Guitar, elec., 2-pickup, amplifier, case & strap, \$65. 213-833-4191. C

Sloop, Snipe by Varalayay, 16', fiberglass, foam flotation, north sails, custom boat trailer, fully equipped, \$890. 213-375-7168. C

Sailboat, 21' Venture, complete w/ trailer, all sails winches, anchor, many extras, sleeps 4, \$2,400. 213-785-6097. C

B.B. Gun, Crossman M-1 carbine, \$10; guitar, elec., amplifier & lge. spkr., \$75. 213-377-4623. C

Trombone, Getzen, B flat, \$70. 213-370-6896. C

Hardtop for Datsun roadster, 1968 or later, \$100. 714-962-1143. C

Adding Machine, Victor, 10-key, carrying case, \$35. 213-321-0020. C

Mini Bike, Taco 99, 5 h.p., \$125. 213-676-4212. C

Home, 2-bdrm., in Manhattan Bch., 50'x150' lot, new bathroom & kitchen, cpts., paneled, patio, \$26,400. 213-372-3967. C

Pistol, Colt Frontier, single action, 38 Special, \$125. 213-375-4312. C

Clock Radio, AM, G.E., solid state, wood grain finish, \$20. 213-374-8289. C

Motorcycle, 1967 Kawasaki, 650 cc, 4-cyl., 4,500 mi., \$600. 213-376-5820. C

Light Poles, 4, 20', steel, \$35 ea.; skylight, 4', \$30. 213-833-2512. C

Radio, shortwave, Heath mod. GR-64, less than 1 yr. old, 4 bands inc. AM, \$25. 213-377-5387. C

Power Supply for mobile transceiver, 800 V., 300 ma., 250-300 V. at 200 MA & 80-105 V. bias supply, used 10 hrs., \$75. 213-320-4057. C

Cessna 150, 1969, 1,300 total hrs., Narco MK 12A nav com., 3 light mb., locator beacon, lease back avail. if desired, take over 5½% loan, \$7,250. 213-324-2992. C

TV, 25" color, RCA console, stereo AM-FM, record player, tape deck, in cabinet, antique white w/gold, \$500; vacuum cleaner, Rainbow, use w/water, \$200. 213-835-5377. C

Sailboat, 13' O'Day, w/American trailer, access., \$650; piano, Story & Clark, spinet, mahogany, bench, \$385. 213-279-2474. C

Surfboard, 7', \$45. 213-391-8098. C

Motorcycle, 1969 Yamaha 100, street legal, dirt parts, elec. start, \$250. 213-645-6211. C

Acreage, 5 acres, Antelope Valley, some paved frontage, \$400 dn., \$6,000; 2½ acres fronting on Adelanto pvt. airport, M-1, \$75 dn., \$75 mo., \$7,500. 213-378-1026. C

Motorcycle, Suzuki 80, 105 cc, \$100; commemorative set, Teddy Roosevelt, mod. 94 Winchester rifle & carbine, both 30-30 cal., \$850. 213-644-5689. C

Pistol, Colt Commando 38 special, 4", \$60. 213-324-5331. C

Piano, Ellwood, upright, \$195. 213-675-8278. C

Piano, upright, recently refinished, regulated & tuned, \$235. 213-696-7529. C

Air Conditioner Kit, for Fiat 124, adaptable for most small cars, \$150. 213-645-7972. C

Home, 2-story condominium, 3-bdrm., 2½ baths, bltins, Inglewood area, \$34,000. 213-674-8534. C

Bicycle, Tour de France, 10-spd., front & back lights, 4 mos. old, \$45. Box 901. C

Adding Machine, manual, paper tape, 7-col., \$15. 213-545-6719. C

Guitar, elec. Fender Coronado w/case, \$175. 213-378-1658. C

Hitch, Easy Lift, w/elec. connect. & tape recorder cassette, \$100. 213-830-5284. C

Miscellaneous For Sale

Car Stereo, Lear Jet, 8-track cartridge, w/ FM radio, converter, dual spkrs., \$75; guitar, elec. Fender Jaguar, \$75. 213-823-5160. C

Yard Lounges, 2 redwood, camping chairs, 4 folding-type & 1 canvas, \$30.50 or sell sep. 213-376-4831. C

Motorcycle, 1969 Sachs-Garelli, 100 cc, exp. chamber, glass fender, \$250. 714-826-9931. C

House, 3-bdrm., den, bltins, lge. corner lot, 2½-car gar., covered patio, many extras, take over \$21,500 G.I. loan, Long Bch., \$28,000. 213-426-4060. C

Shotgun, Remington 1100, 3" magnum, \$120. 213-635-6475. C

Guitar, Martin acoustical elec. w/hard case, \$198. 213-675-0788. C

Sailboat, 24' fiberglass, 5 h.p. outbd., boat bath, \$2,700. 213-374-7928. C

Motorcycle, 1970 Honda SL350 Moto-Sport, \$650. 213-679-6369. C

Bicycle, girl's 3-spd., \$55. 213-542-8118. C

Motorcycle, 1969 Honda CL-90, small rack, extras, \$200. 213-675-4380. C

Art Works, original, oils, sketches, \$1.50 to \$15. 213-679-1631. C

Turntable, Garrard auto., mod. SL65B, 6 mos. old, Pickering cartridge, \$65; tuner, Fisher amplifier mod. 250, walnut cabinet, AM-FM, multiplex, 100 W., \$250. 213-679-6080. C

Radio Equipment, amateur, HQ170 receiver, Johnson pacemaker SSB transmitter, Swan 120 transceiver, Topaz 12 V. power supply, \$500 or sell sep. 213-534-0950. C

Pinball Machine, Chicago Coin Co. flipper skill game, \$205. 213-676-2142. C

Motorcycle, 1970 Triumph, Daytona 500, \$945. 213-340-7581. C

Wanted to Buy

Piano, console, Gulbrandsen preferred, consider others. 213-675-5965. D

Wheel, 700x16 split rim, 8-hole, for 1967 ¾-ton GMC truck. 213-676-0516. D

Bicycle, men's 10-spd., Schwinn or equivalent, in good condition. 213-378-2790. D

Lower Housing Unit, complete, for 1967 Mercury 250 outboard eng. 213-596-6473. D

Auto Emblems, old style, AAA, Fire Dept., MD., & others. 213-676-8817. D

Saddle Tanks, 1 or 2, 18 to 20 gals., for Chevrolet truck, reasonable price. 213-323-1668. D

For Trade

TV, 21" b&w, in maple cabinet w/doors, UHF converter & VM record turntable, trade for TV, b&w portable. Box 902. E

Free (To Be Given Away)

Kittens, 3, long hair, grey. 213-865-1344. F

Pups, pom-poodle, brown, male & female. 213-326-7528. F

Kitten, rare grey marked calico, to qualified ailurophile. 213-378-3809. F

Rentals Offered

Vacation Cabins, Idyllwild, 1 & 2 bedrooms, stream, patio, f/place, \$30-\$40 w/end, \$70-\$90 wk. 213-868-8040. G

Cottage, Ocean Bch., San Diego, near Mission Bay, \$75 wk. 714-826-2007. G

Apt, 2-bdrm., unfurn., bltins, cpts., dps., air cond., b/fast bar, pool, adults, no pets, \$155 mo. 213-325-2512. G

Cabin, Green Valley Lake, \$65 wk., \$45 w/-end. 213-320-2002. G

House, Bass Lake, \$150 wk., \$45 w/end. 213-374-3702. G

Trailer, 55', 2-bdrm., at Havasu Landing, \$100 wk., \$30 w/end. 714-529-3689. G

Apt, 2-bdrm., cpts., dpts., bltins, lge. pool & patio, parking space, near El Camino, adults, \$165 furn., \$145 unfurn. 213-329-5986. G

Cabin, Big Bear City, 2-yrs. old, sleeps 8, bath, \$90 wk., \$45 w/end. 213-320-6486. G

Studio Apt, lge. 3-bdrm., 3 baths, family rm., pvt. gar., adult bldg., Inglewood, \$450 mo. 213-670-6084. G

Cabin, Lake Arrowhead, No. shore, 200 feet from lake, pvt. dock, \$120 1 wk., \$200 2 wks. 213-375-2255. G

Child Care

Babysitting, young child, my home, Mon.-thursdays Fri. only, near Northrop. 213-644-3775. I

Child Care Offered, my home, all ages, all hrs., fenced yd., hot meals, reasonable, playmates. Box 903. I

Personals

I wish to thank my friends at Northrop for all the cards, flowers & phone calls received during my illness. BOBBIE REYNOLDS. L

To the many friends of Chuck Davis, I wish to express my deepest thanks for all your kindness. His enthusiasm & love for aviation was always with him. JOAN DAVIS. L

We want to sincerely thank all our Northrop friends for the phone calls, best wishes, cards & gifts during Harold's recent illness. LEONA DIETRICH. L

My sincere thanks to all my friends & colleagues at Northrop for their many good wishes, the memorable party & wonderful gifts they gave me on my retirement. HARRY R. "PETE" PETERSON. L

I wish to thank all my friends & co-workers in Orgns. 5502 & 5515 for the wonderful retirement party & gift which were given to me. PAUL DURON. L

I wish to express my sincere thanks to all my friends for their many gifts & the luncheon in honor of my retirement. WALTER DUFFY. L

Ride in aircraft from Antelope Valley to Hawthorne, 7:42 to 4:42 shift, share expenses. 805-948-7424. L

EDITOR'S NOTEBOOK

Maybe it's the time of the year, spring and all. Or the phase of the moon or sweep of the tide or something like that. Anyway it's happened. Our usually docile hunt-and-peck-writer has gone on its annual binge, spewing letters and words about at random, taking note of things that may or may not be of interest to folks, refusing to bow to reason. Rather than fight it, this year we are going to go along with it and just print some of the entries. Maybe you can get some conversation mileage out of the following tangle of facts, figures and statements.

The jet age promises more jobs for U.S. citizens with scheduled airlines. In 1958, when the first jets went into service, airline employment was 147,000. Today the airlines employ more than 300,000. And within the next decade this total is expected to climb to 500,000 people. Allowing for the multiplier effect, there are three additional jobs in related fields for each one on an airline.

If court decisions hold up, commercial air travelers will have to become accustomed to being served by as many stewards as stewardesses. A U.S. Circuit Court of Appeals in New Orleans has said that the exclusive use of females for in-flight service violates the 1964 Civil Rights Act. Airlines have maintained, and we have to agree with them, that passengers overwhelmingly prefer to be served by female stewardesses.

And for those who tell you the aerospace industry makes plush profits, try this one. If all defense industry profits were wiped out, taxpayers would save only 1.6 per cent of the defense budget. That, says Deputy Defense Secretary David Packard, is averaged after-tax profit of the defense industry—one and one-sixth cents profit on one dollar of sales.

And if you let last Monday slip by without fanfare you're not reacting like a typical American taxpayer. May 10 is a red-letter day. Or maybe a "black-letter day" is a better description. Anyway, according to the Chamber of Commerce of the United States, May 10 is the day the average American taxpayer starts to work for himself. Until then, all his earnings are earmarked to pay his 1971 federal, state and local taxes.

If four months seems like a long time before earnings equal the average tax load, look at it on a daily basis. The average wage earner needs to work more than one-third of every eight hour work day—two hours and 51 minutes to be exact—before his daily income will be enough to cover his tax bills, the National Chamber tax experts say.

The "anatomy of a news feature" finding its way into the pages of Northrop News can often be as interesting as the feature itself. Take as an example the rocket sled test feature on page three. Ralph Morgan called the office one day and suggested a story on the subject. Charley Barr of the Corporate office recalled that Col. John Stapp had recently retired from active USAF duty. He enlisted the aid of Tom Nelson of Northrop's Washington, D.C. office. Mr. Nelson personally interviewed Col. Stapp, wrote the interesting feature on him and arranged for photographs from the Department of Transportation of presentation of the Distinguished Service Medal.

News Editor Ivy Edmonds in the meantime contacted numerous employees who had participated in the program and wrote the supporting story. Jake Superata let us borrow his personal photograph book for selection of on-the-scenes activities in the program. So there you have it—a lot of people pitching in to lend a hand. So if you have ever had an idea for a story and hesitated to suggest it due to one reason or another, forget it and give us a call. With help such as this we can usually come up with interesting stories on Northrop, its people and products. And that's what the News is all about.

NORTHROP NEWS

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Editor—Business Affairs Rosemary Hussey

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Personals

Pup wanted, free, beagle or mixed beagle. 213-943-6469. L

We wish to extend our sincere appreciation for the many thoughtful expressions from our friends at Electronics & Aircraft divisions during the recent bereavement of our son, Kenneth Richard Gerson. HAROLD & TRINA GERSON & FAMILY. L

My mother & I sincerely thank you for your kindness during the illness & demise of my beloved wife. Also for the blood made avail. during her hospital confinement. GLEN KLINGER. L

Plumber & licensed electrician wanted for room addition, pvt. home. 213-374-2767. L

For Sale or Trade

Cups & Saucers, depression cherry blossom, \$4.50 ea. or trade for ruby, cobalt & milk glass, American Sweetheart or Cobalt Royal Lace. 213-324-4186. M

Motorcycle, Triumph Bonneville, 650 cc, extra chrome, \$750 or trade for Volkswagen. 213-323-9598. M

Cadillac, 1966, 4-dr., \$1,700, or prefer trade up or down for van camper, VW o.k. 213-534-0950. M

Rides and Riders

Rides Wanted

7:30 a.m. — 4:12 p.m.

Manchester & Prairie, Inglewood. D. W. Jurs, Mariposa exts., 6226, 6227, 213-674-2672.

8 a.m. — 4:42 p.m.

Whittier Blvd., Painter Ave., Colima Rd., Whittier. C. Rosenkranz, Aircraft ext. 1020, 213-696-3467.

Rides Offered

8 a.m. — 4:42 p.m.

Whittier Blvd., Painter Ave., Colima Rd., Whittier. C. Rosenkranz, Aircraft ext. 1020, 213-696-3467.

IS IT NEWS?
CALL EXT. 4273
HAWTHORNE

Donors Aid Employees, Institutions

For the first time since its inception, the Ventura Division Dollar Donors has given as much money to in-plant federations as it gave to recognized charitable institutions.

"It's difficult to pinpoint the reasons," said Johnnie Via, president of Dollar Donors, "but unforeseen circumstances forced many employees to come to us for assistance."

One of the employees whose family was aided by the Dollar Donors responded typically in a letter to the group's board of directors.

"I can't tell you how much we appreciated the thoughtfulness of the Dollar Donors," said the letter. "It is truly gratifying to know that your co-workers want to help in times of need."

The board determines how the budget, drawn from voluntary weekly payroll deductions by more than half of all Ventura personnel, is to be spent. The criteria is flexible, explained Mr. Via.

Others on the board are Bernie Sklar, secretary, Bob Prieve, treasurer, and Leo Karas, vice president.

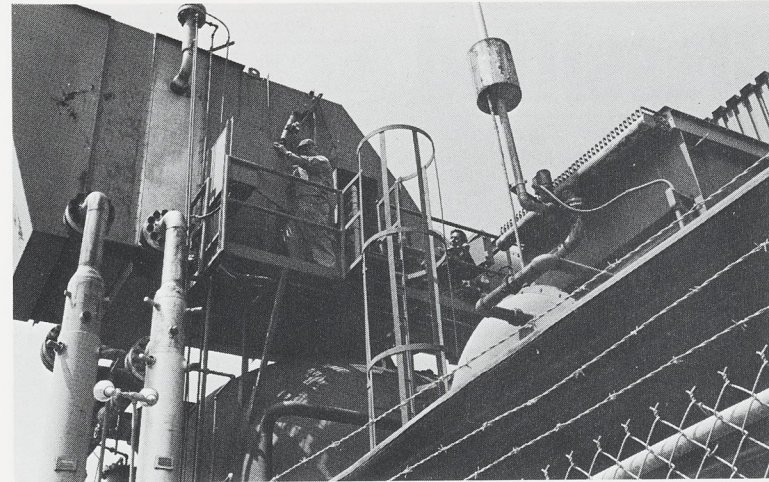
Standard charitable institutions which received aid from the Dollar Donors this year included the City of Hope, Crippled Children's Foundation, Salvation Army, United Fund, among others, and various youth groups.

"Although the number of Dollar Donors contributors has been reduced in recent years we will continue to support needy groups and individuals," Mr. Via said.

Dollar Donors payroll deduction forms may be obtained from the Personnel office. Donations are tax deductible.



KEEPING AN EYE ON THE AUTOCLAVE
Mechanic Jim Kearney, left, works closely with operator Tony Sotelo.



PREVENTIVE MAINTENANCE AT WORK
Wilbur Leeds, left, and Norris Drewery atop exterior rig of autoclave.

Preventive Maintenance Gives Autoclave Perfect Record

One of the key links in the chain of smooth 747 production operation is the huge autoclave where wing fairing parts are cured under heat, pressure and vacuum.

After more than 1,500 runs in the 60 feet long by 12 feet wide cylinder the autoclave has not gone "down" resulting in a lost load.

One of the principal reasons for this record of success is a small team of autoclave maintenance specialists who have kept the big "pressure cooker" running smoothly.

Norris Drewery is the leadman in autoclave maintenance. Working with him are Wilbur Leeds, maintenance mechanic, and Jim Kearney, autoclave mechanic. Tom Cotton is a standby mechanic.

"If that 'clave malfunctions during a run we have just 15 minutes to repair or replace the faulty part," explained Mr. Drewery. "After that 15 minutes is up the pressure or heat goes down below the point where the part can be salvaged or the run continued," he said.

Fifteen minutes isn't much time when you're dealing with a complex piece of machinery that has

a price tag (new) of nearly \$1 million.

"These guys really deserve a pat on the back," said their boss, A.I. (Chat) Chatelain, manager of Construction and Maintenance. "They've put in a lot of time and effort, especially in the earlier days," he noted.

When the autoclave went into operation in mid-1967 the maintenance crew put in weekends and nights, when needed, to assure its proper operation, Mr. Chatelain added.

Making Do

"We didn't have a back-up nitrogen system (to cut-in when the inert gas compressor or boilers failed) nor did we have a standby aerotherm hot water circulating pump. In those days, those two components were our paramount concern. Downtime on those meant that we really had to hustle," Mr. Chatelain said. "Today the machine is operating at peak efficiency."

The autoclave heats the parts at 360 degrees Fahrenheit (with a capacity up to 600 degrees) and at 50 pounds per square inch of pressure (with a capacity of up to 250 psi).

"It's sort of like a cake that's

taken out of the oven too soon," explained Mr. Drewery. "If you turn the heat off in your oven and it's off too long then the cake is ruined."

Instead of cake, though, Mr. Drewery and his co-workers are dealing with laminated fiberglass

aircraft parts worth thousands of dollars.

Working closely with them are autoclave operators Tony Sotelo, Gene Colburn and Jim Case. "If we can see a problem developing they find it fast and fix it," said Mr. Sotelo.

On The Job . . .



MEL RICH, supervisor of drawing check in the Ventura Division's Engineering Department, has been with Northrop since 1957. Before checking the blueprints he was a tool engineer for five years.

VENTURA DIVISION RECREATION CLUB ROUND-UP

The Rec Club will establish new facilities in the Ventura Division's Administration Building

approximately July 1.

The former facilities used by the Rockhounds and Dance Clubs

on Sherman Way in Reseda was closed down April 1 and "the move to in-plant facilities has been coming for a long time," explained Hal Hunsberger.

Mr. Hunsberger, chairman of the Rec Club's Facilities Committee, noted that two-thirds of Ventura Division personnel now live in the Ventura County area "and it only makes sense that Rec Club facilities be located where the most people can best put them to good use."

He and Chuck Simmers, the Rec Club's Industrial Relations representative, worked out the plan for the new area.

The new facilities will cover approximately 1,200 square foot of floorspace and will utilize expanded employment lobby area and access.

"This will mean that a new wall will have to be built," explained Mr. Hunsberger, "and a new door for the west side of the office. The result will be a facility which can be used nightly and on weekends and still meet all security regulations."

Included in the new facilities will be equipment for the Rockhounds (used in grinding and polishing rocks), a darkroom for the Camera Club, storage bins for necessary supplies needed by various clubs and badly-needed meeting and working space for several other clubs.

The Rec Club's existing servic-

es office in the Engineering Building, manned Mondays, Thursdays and Fridays by Kathy Miller, will continue to operate, Mr. Hunsberger added.



The first tournament of the newly reactivated Ventura Division Chess Club will take place in early June, according to Club Commissioner Ivan Blum.

Four special awards will be presented to top participants, Mr. Blum said. These will be first and second prizes for best performance and first and second for players showing the most improvement in the round robin tournament.

Participation in the lunch hour tournament is not limited to club members, Mr. Blum added. He may be contacted at ext. 1007 for further information.



Nearly 20 Ventura Division personnel and members of their families are expected to spend the coming weekend at the Salton Sea in a special family outing sponsored by the Rod and Gun Club.

"We're looking forward to a weekend of fun and relaxation," explained Martha Cleous, promoter of the outing.

Mrs. Cleous is making her two trailers available to Ventura visitors. The trailers are located just

two blocks from the Salton Sea near an area called Salton Sea Estates.

Participants are urged to bring their own food and drink, bedding (there's space for trailers, campers and tents), fishing tackle, boat and water skis, motorbikes, or dune buggies.

Fishermen will try to reel in some of the corvina, sargo and croaker which abound in the desert lake.

Detailed directions and further information may be obtained by calling Mrs. Cleous, ext. 382, or Karl Stoy, ext. 279.



Still another golf event is attracting Ventura Division golfers. This league, sponsored by the Ventura Division Golf Club, plays each Wednesday evening at the Sunset Hills course in Thousand Oaks.

Twelve teams are participating. The teams include Jack and Lillian Bunnell, Jack Moore and Paul Scott, Grady Means and Paul Wood, Bill Walstrum and Joe Sliakis, Ivan Blum and Marty Nemeroff, and Jim Goff and Ted Randolph.

Also, Bill Kearney and John Wells, Tom Boyce and Andy Tyszkiewicz, Herb Covell and Sue Saulsbery, Oral and Muriel Piercey, Ralph James and Bob Legg, and two retirees, Wes Steyer and John Breneman.



PLAYING BOCCIE AT LUNCH TIME
From left, Delio Piantino, Paul Potter, Dick Martin, Cecil Wheeler and Pat Cloward.

NORTHROP NEWS

VENTURA DIVISION EDITION

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FINAL TOUCHES ON ARTIST'S CONCEPT

Jack Calder and Mort Miller put final touches on rendering of a poster for "people mover."

Ventura Expands Product Line To Personal Rapid Transit Field

The Northrop Corporation—through the Ventura Division will utilize its advanced technology to expand into the "people mover" or Personal Rapid Transit System Field.

The Ventura Division has entered into an agreement with Uniflo Systems Co., a firm in Minneapolis, Minn., which has a working prototype model of such a system. Together they will explore the many business possibilities in this fast-growing field.

One of the areas receiving attention is the United States International Transportation Exposition opening next spring at Dulles International Airport, Washington, D.C.

The people mover system is designed to transport very small groups of people to pre-determined destinations without intermediate stops. The fully automated system features individual cars which are both supported and propelled by a cushion of air.

CORMAN TO VISIT

Congressman James C. Corman, Dem-Van Nuys, will visit the Ventura Division the afternoon of May 28. He will meet with division management and tour the facility.

Congressman Corman's twenty-second district covers much of the San Fernando Valley.

LONG WEEKEND

Ventura personnel will join co-workers at other Northrop facilities in observance of Memorial Day on Monday, May 31, with a paid holiday.

The three-day weekend will be followed by another in five weeks when Independence Day, Sunday, July 4, is observed with a paid holiday on Monday, July 5.

The cars can hold up to eight people and are propelled along a guideway. The system can be used at an airport, university campus, downtown core or similar centralized areas.

"Systems which move small groups of people economically, safely and quickly will soon be a necessity," explained Welko Gasich, division general manager. "The field represents an outstanding opportunity for Northrop and the Ventura Division," he said.

"Mass transportation will be a future growth area."

Uniflo, a subsidiary of Rosemount Engineering Corp., has developed such a system. Also involved as a subcontractor to Uniflo is the Foxboro Development Co., Foxboro, Mass.

Heading the Personal Rapid Transit group at the Ventura Division is Larry Carroll. Working closely with him are Bob Jennings, John Roach, Bob Cole and Steve Downey.

Navy Develops Simulator to Train Target Controllers

Technicians at the Naval Missile Center of the Pacific Missile Range Headquarters at Pt. Mugu have developed a special flight simulator for training of MQM-74A flight controllers.

Very similar to the Northrop-developed simulator, the U.S. Navy version utilizes computers for real-time readouts and status checks.

Students operate a simulated drone by computer from a control room which is also simulated. The control console, however, is the same one which is used in the field.

Adding to the realism are noise and distractions similar to that of a real control room.

The Navy put the simulator into use last month and the first students were flight controllers from four stations around the world where the Navy uses the Northrop-produced MQM-74A aerial target. These are Norfolk, Va., Barbers Point, Hawaii, San Diego and Okinawa.

Using the computer, the students fly the MQM-74A on a planned mission. The course of the target is plotted on a display board as the flight "takes place."

Every characteristic of the MQM-74A is programmed into the computer, including probable

flight problems.

The student must react quickly to these problems and find solutions to prevent an aborted flight. If the flight does abort the student has a second chance to solve the problem. There are no "second chances" in the field.

Advantages of the simulator are manifold. Targets are not jeopardized at the hands of ill-prepared controllers and training time is shortened from about three months to two weeks, according to a report in the Pt. Mugu newspaper.

Follow-on courses in the MQM-74A will be held every quarter at the Naval Missile Center or as required for fleet remote controllers' training, the newspaper noted.

Computer Sale

First sale of the Electronics Division's latest high-speed general purpose computer, the NDC-1070, was made last month to the Fort Worth operation of General Dynamics' Convair Aerospace Division.

The computer will be used in the Aerospace Labs of the Systems Technology Department of the Research and Engineering organization.

Five Observe 20 Years As 17 Venturans Receive Northrop Service Pins

Seventeen Ventura personnel qualified for service pins this month including a 25-year man and five others observing 20 years with the company.

The quarter-century man is Ralph Friesen, program manager for Northrop's Crete operations at the NATO Missile Firing Installation.

Mr. Friesen began his Northrop career May 6, 1946, at the Aircraft Division. As a field service mechanic he worked on many Northrop aircraft before moving into engineering and administration.

In June 1958, Mr. Friesen transferred to the Ventura Division as a military relations representative. He subsequently served in several managerial capacities before being appointed to lead the NAMFI proposal (and later operation) a year ago.

The five people observing two decades with the company all began with the then-Radioplane Division in Van Nuys.

Dorothy Clouse worked in sheet metal assembly on target drones when she began with Northrop. For the past 2½ years she has been on 747 assembly. Her husband, Bill, retired recently after 22 years in the Model Shop at Ventura.

Jim Covington has done a little of everything since he first went to work on target drones May 17, 1951, as a drill press operator. A true jack-of-all-trades, Mr. Covington is now in the T-38 and F-5 Plastics branch.

Target drone production has been Estella Johnson's main interest for the past 20 years. She has worked on all phases of the KD2R5 Basic Training Target



Mrs. Clouse



Mr. Pulver

and today is assigned to the wing assembly for the MQM-74A.

Staying in the same field is also the path Joe Pulver chose with Northrop. His first work 20 years ago was making shipping crates. Now he is not only in charge of the crates but is manager of Warehouse and Traffic.

Bill Wabnitz is a specialist, too. His specialty is keeping things clean and operating.

When he began May 11, 1951, as a general maintenance man, he capitalized on his skill with machinery and since 1957 has been a machine tool rebuilder.

Three men qualified for 15-year service pins. They are Bob Baltz, Quality Control; Richard Bargman, Production Estimating; and Darrell Welch, Engineering.

Two men in Engineering received 10-year pins this month. They are John Robinson and Dr. Robert D. Johnson.

Five-year pins went to Gene Baca, Dan Beltran, Bill Bevan, Frank Cua, Roy Fox and Jimmie Montoya.

BOND CAMPAIGN TO END FRIDAY

Northrop Corporation's annual U.S. Savings Bonds campaign now in progress throughout Northrop facilities in the Southland will close on Friday.

Personnel who are not signed up for payroll deductions for bond purchases are being contacted during the drive.



Mr. Covington



Mrs. Johnson



WATCHING 'FLIGHT' OF TARGET
Navy controller practices on simulator. (U.S. Navy Photo)

He Brought The Audience



MAJOR T. O. LA JEUNESSEE receives an assist from his wife, Carol, and daughter, Teri, in pinning on his new insignia of rank. The new major is serving at the Northrop AFPRO as chief, Development Engineering. Looking on are Major La Jeunesse's other children, Denise, Dan, Ted Jr., Lori and Tony, from left.

Company Set to Support Crotale Missile System

Northrop Corporation has entered an agreement with Thomson-CSF of France to jointly support the Crotale ground-to-air missile system as a potential weapon for the U.S. armed forces.

The low-altitude Crotale system is presently being evaluated at Fort Bliss, Tex., under a contract awarded Thomson-CSF, developer of the Crotale, by the U.S. Army.

The two companies are preparing a license agreement with a view to more extensive evaluation tests. These tests could, in

turn, lead to a production program for the Crotale system in the United States. France is currently purchasing the system for its Air Force.

Northrop and Thomson jointly own a U.S. subsidiary, Warnecke Electron Tube, Inc., and have cooperated previously in European development and production programs.

The negotiations have been carried forward with the assistance of DGA International, Inc. of Washington, D.C.

NORTHROP MEN ACTIVE IN FESTIVAL

Men from two Northrop divisions and the Corporate office were on hand May 14-16 for a big Festival of Friendship held at Lincoln Park Recreation Center in East Los Angeles.

Al Blanco, Joe Herrera, John Espinoza and Al Martinez of the Electronics Division, Willard Hall and Ray Chavez of the Aircraft Division and Dave Davidson of the Corporate office represented Northrop at the three-day event. A parade was part of the festivities.

At an aerospace booth inside the Recreation Center the Northrop men talked with secondary school students and their parents, discussing Northrop and its prod-

ucts, suggesting courses of study for youngsters interested in aerospace careers and encouraging all to continue their education as long as possible.

Electronics Division representatives brought along the division's "Circadian Periodicity" display as an example of space exploration activities.

DISPLAY SET

Northrop Architectural Systems plans to display its new "Arcadia Builder Package" during the Pacific Coast Builders Conference to be held June 1-4 in San Francisco.

ARMED FORCES DAY FLOAT



NORTHROP CORPORATION float in the big Torrance Armed Forces Day Parade featured the theme Defense, Discovery, Development and depicted company's worldwide scope of interest.

New Northrop Subsidiary to Carry On Airport Development Activities

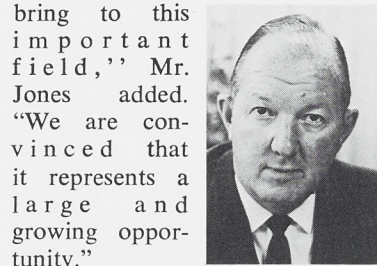
Northrop Corporation has formed a new wholly owned subsidiary — Northrop Airport Development Corporation—to carry on the company's business in the field of airport planning and development.

"Because of Northrop's long-term interest in aviation, it has been involved in this field for some time and today is active in over 20 airport studies and development projects throughout the world," said President Thomas V. Jones.

"In this period we have had an opportunity to study the field first-hand and have made intensive analyses of the worldwide requirements.

"In conducting this activity, we have gathered together specialized personnel with long individual experience in the field, who will form the nucleus of the new corporation," Mr. Jones added.

"Of course, airports are being built everywhere, and every phase of planning, design, and construction needed to get them built is currently being performed," he said. "What is often lacking is a total systems approach that includes all of the significant problems and brings all of the solutions together into an integrated workable operation. Systems management is a technique in which Northrop has had broad experience and which it can



Glenn R. Mr. Lord, Corporate vice president—Marketing, has been named president of the new subsidiary. As a subsidiary president, he will also be a corporate vice president.

In summarizing the new company's concept and outlook, Mr. Lord said:

"Northrop Airport Development Corporation will focus on planning, management of design, management of construction and operations of airports and airport modifications. It is well known that many airports throughout the

world are not equal to the present volume of traffic and the demands it places on them. In addition, our studies indicate that air traffic will continue its long-term growth both in passenger and cargo business. Over 50 countries already have airport expansion projects under way or are contemplating them. It is estimated that the total of new or improved airports required over the next 10 years throughout the world represents a potential market of some \$80 billion, divided almost equally between the United States and other countries.

"An airport must be more than a set of runways and terminal buildings. Northrop's approach views all the factors that affect airport operations, such as, for example, passenger safety and convenience, efficient airline operations, and environmental conditions as they affect the community in which the airport is located. Of special importance are the problems of airport financing and profitability.

"Each of these factors has a bearing on all of the others, and the crux of the problem is to find a plan which best satisfies all of the many requirements. This requires a system approach and the key to Northrop's new Airport Development Corporation is systems management."

Families Invited To Take Part in Rubella Sunday

Northrop families residing in Los Angeles County are being invited to take part in Rubella Sunday to be observed at 150 public high schools in the county between 11 a.m. and 4 p.m. June 6.

The aim of the program is to immunize 150,000 children between the ages of one and 12 years against Rubella (3-day German measles). There is no charge for the immunization.

County health officials say that less than 40 per cent of the children in the county have been vaccinated against Rubella, not enough to stop an outbreak of Rubella, if it occurs. And they add that Rubella epidemics occur every six to nine years. As the last epidemic in the area occurred in 1964, another is predicted for somewhere between 1970 and 1972.

While Rubella has little effect on children, it has serious consequences when a pregnant woman is exposed to the infection. Children are born dead or with serious birth defects in many cases.

At least one public high school in most Los Angeles County areas will feature the free vaccination program.

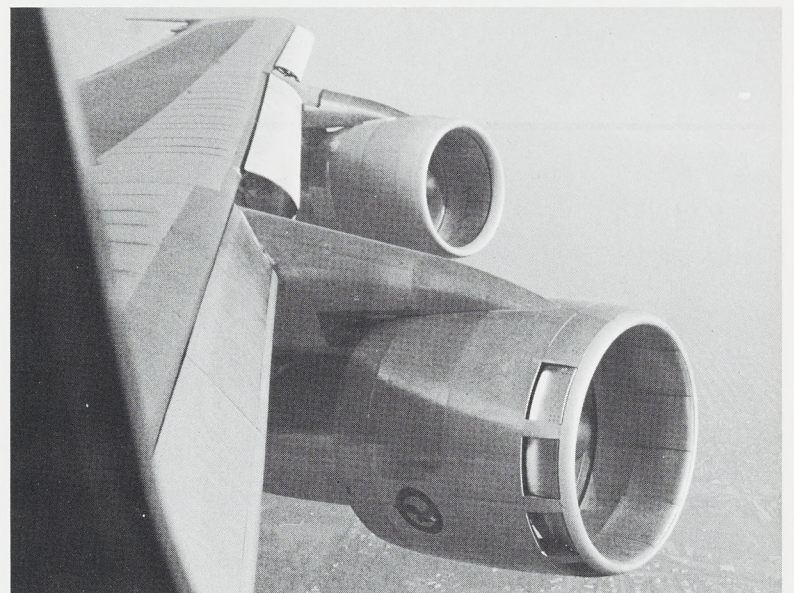
Beyrodt Elected Parks Chairman

Marvin "Red" Beyrodt, Corporate Community Relations representative, has been elected chairman of the City of Carson Department of Parks and Recreation Commission.

Mr. Beyrodt, who has long been active in community affairs, has served as a member of the department and commission since its inception nearly two and one half years ago.

He is also a member of the board of directors and executive committee of the California Association of Parks and Recreation commission and board members and a member of the association's training committee.

Mr. Beyrodt has been with Northrop for nearly nine years and before joining the company he was with the YMCA in Texas and California.



NEW 747 ENGINE INLETS, TOP, IN FLIGHT TEST
Developments will make already quiet 747 even quieter.

Boeing 747 Development Promises Quieter Engines

The Boeing 747, already the quietest long-range airliner in service, will be even quieter after December as a result of new engine inlet development.

The Boeing Company has put into production a new engine inlet which will reduce the sound levels heard on takeoff and landing approach. All 747s delivered beginning in December will be equipped with the new inlet.

The new inlet is part of a \$5 million sound suppression re-

search and development program for the 747 engine nacelle. It will enable the 747 to be certified in accordance with FAA regulations.

By providing smoother flow of air into the 747 engines, the new inlet will further decrease moderate engine noise levels presently generated.

The new inlets eliminate the need for "blow-in doors" which are part of the 747 engine pods.

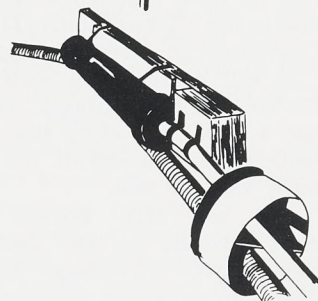
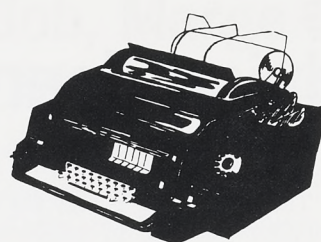
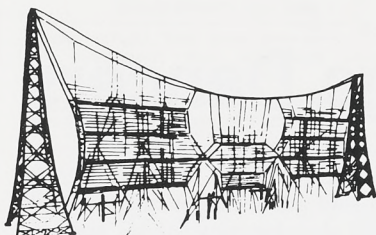
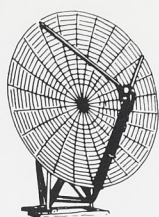
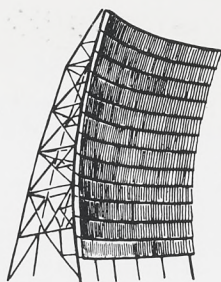
PERSONNEL CHANGES MADE BY ATC

Lt. Gen. George B. Semler, commander of the USAF Air Training Command, has announced key personnel changes for his 16-base command.

In July, Maj. Gen. John B. Samuel, Lackland Military Training Center commander, replaces retiring Maj. Gen. Dwight O. Monteith as commander of the

Lowry (Colo.) Technical Training Center.

Maj. Gen. Charles W. Carson Jr., ATC deputy chief of staff, replaces Gen. Samuel. Replacement for Gen. Carson is Maj. Gen. Felix M. Rogers, now a senior member of the United Nations Command in Korea.



A Photoscope Visit With Northrop Page

A photoscope visit to Northrop Page Communications Engineers opens the door to more than 40 countries around the world.

With a reputation that spans the globe, Page is an established leader in the communications field through its ability to undertake "total" communications systems of any magnitude, anytime, anywhere in the world.

In operation since 1947, and

acquired by Northrop in 1959, Page has grown over the past 24 years from a group of five persons to an organization employing thousands.

Page builds civil and commercial communications systems (including broadcast, telephone and telegraph, and air and rail traffic control), military communications, missile and space communications, and satellite commu-

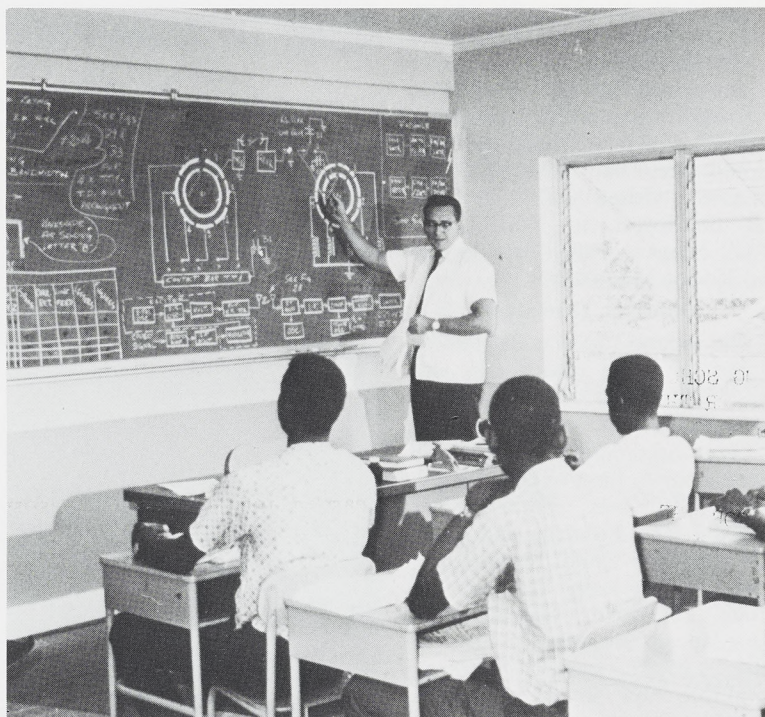
cations earth stations.

Rather than manufacture equipment, Page selects the best possible equipment from manufacturers around the world for its customers. What Page does provide is the highly specialized design, engineering, installation, management and operation services to meet the requirements for a customer's desired system—anywhere in the world.



\$200 MILLION INTEGRATED NATIONAL TELECOMMUNICATIONS SYSTEM

Page is playing the leading role in the development of a nationwide public telephone, telegraph, television and wideband data telecommunications network that will give Iran one of the most modern communications systems in the world. The system will connect 60 major urban centers and hundreds of widely dispersed installations, towns, villages and hamlets.



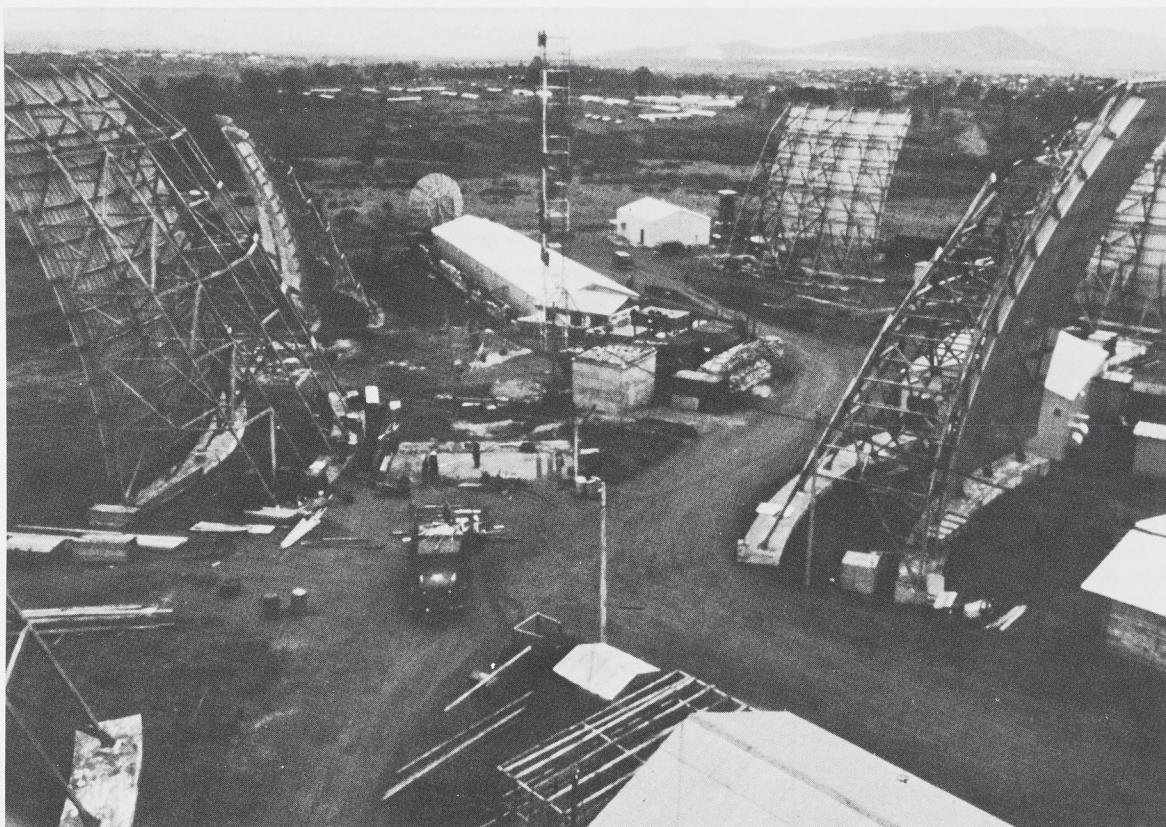
BAHAMAS TRAINING SCHOOL

One of Page's most significant civil communications projects was the modernization and expansion of the Bahamas telecommunications system. Other Page civil and commercial projects include airport communications for Ethiopia, Canadian National telecommunications system, Voice of America installations, and various studies for the FAA, Libya, Southeast Asia, Guinea and Taiwan.



SPACE PROJECT

Page's contributions to U.S. space communications are many, such as this Troposcatter system in Puerto Rico for the Air Force Missile Test Center. Page also has completed several projects for NASA.



INTEGRATED WIDEBAND COMMUNICATIONS SYSTEM

Page was responsible for the construction of the Vietnam portion of this system, installed in support of Free World military forces in Southeast Asia. The overland and spur links of the IWCS total approximately 470,000 circuit miles. Page has designed, engineered and built several other communications systems in the Pacific area of the world.

SWINGIN' SWEETHEARTS

Boswells Advise Teenage Dancers

Lee Boswell, a 30-year Northrop employee who is a research assistant in the Aircraft Division's Research Laboratory, will take 22 youngsters on a 7,282-mile trip in June centered around a visit to the National Square Dance Convention in New Orleans, La.

It will be the third such trip for Mr. and Mrs. Boswell. "We've had a good time every time and look forward to lots of fun this time, too," he said.

Mr. and Mrs. Boswell are chief advisors to the Swingin' Sweethearts, a teenage square dance group which meets every Monday evening. Twenty-two of the members are in a special exhibition group which also practices on Tuesday evenings and performs for adult square dancers or civic groups in Southern California.

Mr. Boswell's interest in square dancing began right after World War II. He became a caller in 1949 and began the Swingin' Sweethearts in 1957 with 80 to 100 youngsters in Hawthorne.

The group first chartered a bus in 1962 to attend the convention in Miami. By the time they returned they had covered 8,000 miles and visited landmarks from the Southwest to Washington, D.C., Niagara Falls, Canada and the Rocky Mountains.

Different Direction

The second trip was in 1965 to Dallas. But the return trip was via Maine and once again hit many landmarks.

"We originally got involved when our oldest child, Judy, (now 27), was interested in 1957," Mr. Boswell explained. His youngest child, Randy, 16, now dances with the current group. His other offspring, who also danced, are Mandy, 20, and Larry, 25, a former Northrop employee now in the U.S. Air Force.

The youngsters have their own organizational set-up and do most of the work, Mr. Boswell said. "We feel it's their group and they should have the responsibility. We're just there to help out." And teach square dancing and call the dances.

A past-president of the Southern California Square Dance Callers Assn., Mr. Boswell works with the group on one premise: "We'll treat this like an adult class and expect you to act as adults."



TOP O' THE HILL
Lee Boswells and pretty charges.

DAY AT RACES

Northrop ticket outlets are offering tickets for the big "NRC Day at the Races" set for June 26 at Hollywood Park.

The \$6.25 charge includes admission to the Clubhouse, a reserved seat and a buffet luncheon to be served from 11:30 a.m. to 1:30 p.m. The 300 tickets are being offered on a first-come, first-served basis.

The youngsters have not disappointed him.

They are raising money for the trip, for example, by conducting rummage sales and paper drives. Other support for the trip comes from adult square dance groups

and friends.

Square dance callers are paid to lead adult dances but Mr. Boswell donates most of his services to the teenagers. His "payment" comes in a form much better than money.



MR. AND MRS. LEE BOSWELL AT 'WORK'
Photographer Dave Saldana captures Mr. and Mrs. Lee Boswell leading a set above and the Swingin' Sweethearts in action below.



PRIZE-WINNING GHOST TOWN SCENE

'Latter Day Desert Rat' Paints An Award Winner

A self-styled "latter day desert rat" has struck gold up in the California Mother Lode country, but Bob Peck, Electro-Mechanical Division, did his prospecting with a paint brush instead of a gold pan.

A painting Bob did of a delapidated building in the ghost town of Bodie won two major prizes in the recent all-California exhibit at the National Orange Show, San Bernardino.

The four-by-four foot painting won a \$350 first prize in the exhibit and also was awarded the \$250 fourth annual San Bernardino Sun-Telegram Purchase Award.

The prize winning painting was done in acrylic. His other desert scenes, many of which are in private collections and represented in the Challis Gallery, Laguna Beach, and Apollo Galleries, Fullerton, were done in water colors.

Research for the painting was done "on the spot" in the ghost town during a trip that included spending the night among the ruins. "I had to get special permission to remain over night," he said. "It was quite a creepy experience. With night noises,

wind whispering through cracks and varmints howling in the distance, it is pretty easy to see why Bodie is called a ghost town."

After scouting the town, he finally settled on an old assayer's office for this subject. "I was fascinated by the windows," he said. "Particularly the upper window. I got to wondering who had lived there, if he ever struck it rich and what ever became of him."

Since his interest in the desert came later in his life after a lifetime of interest in the sea, Bob calls himself a "latter day desert rat."



ARTIST BOB PECK

WE ASKED THEM—What Can Be Done to Reduce Holiday Highway Accidents?

Ann Butcher, secretary, Electro-Mechanical:

It would help a lot if people would leave for vacations on holiday weekends earlier or later than the regular traffic. I think the best time is about eight or nine at night after the rush is over. Also, you should return earlier in the day or better still the previous night before traffic builds up.



Duane Henry, cost estimator, Electronics:

By convincing people that they should begin and end their trips earlier. Too many people try to extend their holidays until the last minute.



Grady Means, Procurement Follow-up, Ventura:

Stay home. The way I drive, what else can I do?



G. L. Johnson, market research analyst, Electro-Mechanical:

A general approach would be to deal with the issue individually with respect to society on the basis that the following will enhance one's awareness psychologically: (1) By placing more emphasis on driving defensively, (2) by getting off to an early start to and from your destination, (3) by keeping a cool level head.



Q. E. Jenkins, potting assembler, Electronics:

As for myself, I usually get some sleep before I leave on a trip. Also, I give myself plenty of time to reach my destination and return home.



Peggy Walthuis, Spares Follow-up, Ventura:

Have a little common courtesy for the other driver; think of him and his well-being as well as your own.



T. C. Lyons, assembler, Aircraft:

The thing that would help most is to make people slow down. I think driving too fast is the cause of most accidents. Drivers should be more cautious on today's highways.



Classified

Classified ad service is provided free of charge to all Northrop personnel. Ads for agencies, commercial enterprises and private businesses are not accepted. The Northrop News reserves the right to edit or omit ads. Ads are limited to two items per person per issue; each category to be submitted on separate form. Deadline is noon Wednesday, one week before publication.

Automobiles For Sale

Cadillac, 1963 coupe, new motor & trans., needs right front fender, \$550. 213-679-6080. A

Mustang, 1965, auto. trans., 285 V-8 eng., r/h, \$250. 213-679-6102. A

Mustang, 1967, 4-spd., 4-bbl., fiberglass wide ovals, \$1,100. 213-785-1405. A

Mustang, 1970, 302 cu. in., 290 h.p., 4-spd., p/s, power d/brakes, radio, front & rear spoilers, \$2,899. 213-532-5690. A

Chevrolet, 1955, auto. trans., \$50. 714-524-1753. A

Plymouth, 1961 Belvedere, r/h, auto. trans., 225 cu. in., 6 cyl., \$200. 213-679-4511. A

Chevrolet, 1957, 327 cu. in., 4-spd., positraction, all Corvette, \$700. 714-735-3272, 714-737-2742. A

TR Sprite, 1967, low mileage, hard & soft tops, \$1,650. 213-371-3810. A

Edsel, 1959 Ranger, 2-dr. sedan, \$1,200. 213-327-6918. A

Ford, 1967 Mustang, 200 cu. in., 6 cyl., 3-spd. stick, r/h, \$1,200. 213-839-5683. A

Corvair, 1961 Monza, r/h, new motor o/haul, new brakes, \$325. 213-679-7584. A

Volkswagen, 1967, 1600 motor, \$975. 213-328-7989. A

Cadillac, 1964 Fleetwood, fully equipped, leather uphol., \$600. 213-833-5515. A

Mercury, 1951, 3-spd. with o/drive, \$150. 213-679-7730. A

Volkswagen, 1965, 6,000 mi. on new eng., \$1,750. 213-457-7683. A

T-Bird, 1964, air, full power, \$695. 213-423-1363. A

Scout, 1961, 4-whl. dr. w/hubs, positraction rear axle, aux. gas tank, \$1,000. 213-927-0678. A

Chevrolet, 1963 Biscayne, 4-dr., stick shift, 6 cyl., \$350. 213-941-1865. A

Dodge, 1968 Sportsman window van, center bench, V-8, auto., 36,000 mi., \$2,100. Box 1001. A

Volkswagen, 1967, orig. owner, r/h, \$950. 805-495-9736. A

Oldsmobile, 1950 88 2-dr. sedan, 4-spd. Hydramatic, \$325. 213-376-2098. A

Galaxie, 1966, 61,000 mi., \$645; Cutlass, 1966, 38,000 mi., \$750; Camaro, 1969, 38,000 mi., \$1,695, all min. bids. Credit Union ext. 1117. A

Plymouth, 1962 Valiant 2-dr., auto., rebilt. eng., \$325. 213-421-0900. A

Mustang, 1967, 26,000 mi., auto., 289 eng., 2-bbl. carb., \$1,495. 213-542-4417. A

Buick, 1966 Riviera, all power, a/c, vinyl top, \$1,800. 213-372-4907. A

Truck, 1952 Ford w/327 Chev. eng., Powerglide, new suspension, brakes & paint, \$650. 213-677-5740. A

Chevrolet, 1966, 4-dr., Malibu, 8-cyl., \$700. 213-372-1546. A

Household Items For Sale

Sewing Machine, Singer portable, featherweight, carrying case, \$40; bar stools, 2, beige & orange vinyl uphol., \$30. 213-361-6960. B

Stove, Kenmore, gas, broiler, visa oven, \$50. 213-329-1565. B

Crib, drop sides w/mattress, blue on white, hi-chair, other misc. baby items, \$55 or sell sep. 213-376-4831. B

Stove, gas, 4-burner, Wedgewood, white, \$25. 213-679-5243. B

Cocktail Table, maple, drop leaf, \$25. 213-532-6175. B

Washer, G.E., 2 cycle, \$40. 213-367-9644. B

Table, glass top, 4 chairs, wrought iron, \$40; bridge set, table, 4 chairs, \$30. 213-329-9195. B

Washing Machine, 800 Lady Kenmore, self-cleaning filter, \$120. 213-671-2950. B

Dishwasher, Waste King, portable, \$25. 213-322-1974. B

Dinette Set, \$65; bedroom set, \$35. 213-372-9871. B

Bedroom Set, dble. bed, dresser, night stand & desk, \$110. 213-372-1285. B

Hood Vent, 2 motors, fluorescent light, copper, 43" x 22", fits over any 4-burner stove, \$45. 213-672-1716. B

Crib & mattress, \$15. 213-327-4585. B

Lamp Table, walnut wood, \$10; table & chairs for children's rm., orange, \$10. 213-530-0966. B

Chandelier, Early American wagon wheel, \$35. 213-329-0128. B

Couch, & chair, gold w/orange, \$25. 213-329-6748. B

Washer & dryer, Speed Queen, new, in crate, \$400. 213-676-1475. B

End Tables, Chinese black, no mar top, 3 x 3', \$35, 2 x 3' \$25. 213-674-1400. B

Cribs, port-a & standard, both w/mattress, stroller, other misc. baby items, \$55 or sell sep. 213-324-2992. B

Miscellaneous For Sale

Books, World Book encyclopedia, 6 Year Books incl. 1970, 4 Science Year, white leather bound, \$250; Harvard Classics, complete set, \$75. 213-670-6970. C

Motorcycle, BSA 441 Victor, recent o/haul, dirt or street, \$450; skis, metal edged, laminated fiberglass, 6'9" Mercury, poles & bindings, \$40. 714-539-5812. C

Box Trailer, lockable top, convt. for small boat, \$55; sloop, Snipe by Varalyay, 16', fiberglass, foam flotation, trailer, fully equipped, \$890. 213-375-7168. C

Tires & wheels, 2, Ford truck 7.00 x 14, \$5. 213-375-8804. C

Guitar, 12-string Acoustic, mahogany, spruce top, \$65. 213-378-1658. C

Bicycle, 10-spd. Schwinn Continental, \$70. 213-374-4624. C

Box Trailer, 4'x7'x20", \$150. 213-377-1486. C

Acreage, 5 acres, Hwy. 18 in Apple Valley, 10% dn., \$50 mo. at 6.5% interest, \$5,500. 213-327-4356. C

Trailer, 1964 18' Kenskill, self-contained, stabilizer & extras, \$1,850. 213-675-6020. C

Trailer, 2-wheel lug. type, 4'x7'x3' high, spare tire, \$150; tent, 12'x12', cot, other camping items, \$95. 213-645-6494. C

Lawnmower, 21" Cyclonic rotary blade, 3 1/2 h.p., \$30. 213-377-3487. C

Radio, Narco Superhomer, \$100; aircraft engine, Continental 225E, \$1,500. 213-644-4638. C

Piano, Nelson upright grand, \$150. 213-833-2512. C

Communications Receiver, Hallicrafters SX-99, \$50. 213-377-4623. C

Engine for 1966 Volkswagen 1300, trans., misc. parts, \$200 or by piece; lawnmower, Sears 18" rotary, self-propelled, \$65. 213-377-7670. C

Motorcycle, 1969 Honda 350 CB, 7,200 mi., \$500. 213-532-7235. C

Motorcycle, Honda 160 cc, dirt, fiberglass, \$275. 213-675-7371. C

Pup, poodle, AKC white miniature, \$50. 213-866-4104. C

Bucket Seats, black, w/headrests, \$50 pr. 213-677-7832. C

Golf Clubs, 1971 Rams Professional Tour, 2 9 irons, T/W & S/W, 3 woods light weight, stiff shaft D-3, 3 mos. old, \$250. 213-532-4664. C

Motorcycle, 1970 Honda, 350 cc, \$550. 213-324-9476. C

Travel Trailer, 16', sleeps 4, elec. brakes, 4-burner stove, \$500. 213-675-1708. C

Tires, 4 or 5 Uniroyal E 78-14, 4-ply Fasttrak belted whitewall, \$30 ea. 213-378-7479. C

Home, older w/income, close to Northrop, nice yard, trees, patio w/brick fireplace, \$23,900. 213-324-1076. C

Camping Trailer, 1966 16' Field & Stream, sleeps 6, \$600. 213-370-2169. C

Ski Boat, 12x6 Javlyn, glass-wood, 35 h.p. Evinrude elec. start, lge. whl. trailer, \$375. 213-633-2990. C

Battery Isolator, for camper dual batt. installation, \$9.95. 213-534-0950. C

Drafting Machine, Bruning & Wallace, in wooden case, \$150. 213-379-6236. C

Mobile Home, 10x53, 1-bdrm., unfurn., 2 10x50 awnings, 10x17 enc. porch, skirting, a/c, utility shed, adult park, \$6,000. 213-630-2312. C

Pups, Irish setter, AKC reg., \$75 to \$100. 714-735-6780. C

Outrigger 909, 18' Malibu, all stainless bronze, continuous length gaff & boom of laminated air-dried spruce, 2 masts, other access., \$600. 213-375-5629. C

Boat, 1970 Pacemaker, 38' convt. sedan, flying bridge, S.S., depth finder, many extras, \$38,500. 213-823-7402. C

Shotgun, Remington 1100, 3" magnum, \$120. 213-635-6475. C

Acreage, 2 1/2 acres fronting on new Adelanto pvt. airport, M-1, \$75 dn., \$75 mo., \$7,500; 5 acres, Adelanto City, water & elec., \$100 dn., \$100 mo., \$10,000. 213-378-1026. C

Tent Trailer, Sherwood, sleeps 2, table & seats, spare tire, used 3 times, \$350. 213-322-3249. C

Home, 3-bdrm., 1 1/2 bath, complete opts., W. Fullerton location, approx. \$2,300 dn. to new FHA loan incl. all costs, dps., range & washer, \$23,950. 714-871-2598. C

Pool Table, 5' non-professional, rack, 2 pool cues, \$15. 213-672-7719. C

House, in Lomita, 2,000 sq. ft., 5 yrs. old, bltins., landscaped, \$37,900. 213-325-3675. C

Trombone, b flat, \$65. 213-370-6896. C

Bicycle, boy's 20" Schwinn Stingray, \$30. 213-378-2790. C

Dog Food, Kal Kan, 100 cans, \$20. 213-925-0121. C

Power Supply for mobile transceiver, 800 V., 300 ma., 250-300 V. at 200 MA & 80-105 V. bias supply, used 10 hrs. \$75. 213-326-4057. C

Engine, 1955 Ford 6, \$10; lawnmower, reel type, \$15. 213-534-3410. C

Camp Trailer, 16' x 44" high, sleeps 4 adults, \$300. 213-645-3381. C

Trailer Chassis, utility, approx. 4 x 6, 16" wire wheels, \$75. 213-321-0020. C

Motorcycle, 1968 Suzuki X6 Scrambler, 250 cc, \$425. 714-838-7523. C

Mini Bike, Taco 44, 3 h.p. B/S eng., \$60. 213-377-5853. C

Home, 5 bdrm., 3 1/2 baths, 3-car gar., 127' x 100' lot, 2 f/places, wet bar, boat or trailer parking area, 20 x 40 pool, many extras, near Ventura Div., \$69,500. 213-888-8018. C

Piano, Caldwell upright, recently tuned, \$225. 213-374-2188. C

Miscellaneous For Sale

Piano, upright, \$20; spray gun, mod. 525 & air compressor, mod. 600, both Sprayit, never used, \$30. 213-675-6911. C

Pup, Irish setter, male, AKC reg., champ. stock, all shots, \$200. 213-372-4907. C

Camper, 8' stand-up-type, sleeps 3, butane stove, ice box, sink, water tank, \$300. 213-677-5740. C

Piano, Baldwin Acrosonic spinet & bench, mahogany, \$509. 213-894-1381. C

Kittens, Siamese, Seal Point, avail. June 20, \$10. 213-675-1514. C

Swimming Pool, 18' x 4' Sears, filter, all access., \$225. 213-644-6629. C

Motor & transmission for 1962 Falcon, \$30. 213-434-9533. C

Bicycle, lightweight, 20" whls., \$10. 213-377-3806. C

Guitar, St. George elec., fender amplifier, \$150. 213-673-0425. C

Clock Radio, G.E., solid state, \$15. 213-374-8289. C

French Horn, dble. w/case, \$85. 213-821-3627. C

Speed Boat, 16' Pirelli, inflatable, 20 h.p. Mercury outbd. motor, 1971 models, used once, \$1,289. 213-545-6719. C

Movie Camera, professional Pathe Imperial, 8 mm, Som Berthiot 1:1.9 zoom lens, other access., attachs., case, \$125. 213-376-4398. C

Wanted to Buy

Utility Trailer, price, particulars. 213-378-5494. D

Engine for starter dinghy, min. 6 h.p., controls preferred, must be in good condition. Box 1002. D

Auto Emblems, old style, AAA, Fire Dept., MD. & others. 213-676-8817. D

For Trade

TV, 21" b&w, in maple cabinet w/doors, UHF converter & V.M. record turntable, trade for b&w portable TV. 213-679-6982. E

Free (To Be Given Away)

Kittens, 4 wks. old. 213-372-7320. F

Rentals Offered

Motor Home, 1971 Islander, 25', sleeps 8, dble. a/c, radio, 8-track stereo tape, insurance incl., \$290 wk. & 7¢ mile. 213-375-6971. G

Chalet, Lake Arrowhead, open beam, f/ place, bar, patio, walk to lake & village, sleeps 6, \$75 wk. \$35 w/end. 213-845-5949. G

Home, unfurn., lge. 1-bdrm., lge. fenced yd., sep. laundry rm., newly decorated, 3 miles to Northrop, \$175. 213-754-2663. G

House, lge. 1-bdrm., rear, furn., utilities pd., \$105 mo. 213-679-1096. G

Cabin, Big Bear City, 2 yrs. old, sleeps 8, 1 bath, \$90 wk., \$45 w/end. 213-320-6486. G

Cabin, Moonridge, Big Bear Lake, 3-bdrm., 2 baths, f/place, completely furn., family only, \$125 wk., \$50 w/end. 213-326-7232. G

Apt, 1-bdrm., furn., adults, 1 block from beach, Hermosa Bch., \$130 mo. 213-831-6789. G

House, Bass Lake, \$150 wk., \$45 w/end. 213-374-3702. G

Cabin, Green Valley Lake, \$65 wk., \$45 w/end. 213-320-2002. G

Cabin, Lake Arrowhead, no. shore, 200 feet from lake, pvt. dock, \$125 1 wk., \$200 2 wks. 213-375-2255. G

Vacation Cabins, Idyllwild, 1 & 2 bdrm., stream, patio, f/place, \$30-\$40 w/end, \$70-\$90 wk. 213-868-8040. G

Rentals Wanted

Garage needed to store personal belongings, close to Aircraft Division. Box 1003. H

Child Care

Babysitting, 5 min. from Northrop. 213-675-8891. I

Personals

I wish to express my appreciation & heartfelt thanks to the many friends for the wonderful retirement party. It was an occasion with my wife & I shall always remember. R. A. "BOB" PHILLIPS. L

Anyone interested in a group rate on a BD-5 micro-plane kit, 200 mph/\$1,700, call 213-645-8730. L

I wish to express my sincere appreciation to all my friends & to all of Earl's former co-workers for the many floral pieces & cards sent during his recent illness & passing. MILLIE HOLLEY. L

For Sale or Trade

Rifle, .22 cal. Winchester Mod. 90, \$45 or trade for good quality bolt action .22 target rifle. Box 1004. M

Motorcycle, Triumph Bonneville, 650 cc, some modifications, \$750 or trade for Volkswagen. 213-323-9598. M

Rides and Riders

Rides Wanted

8 a.m. — 4:42 p.m.

Springdale & Edinger, Huntington Beach. Paul Eckroth, Aircraft ext. 1477, 714-846-1858.

Rides Offered

8 a.m. — 4:42 p.m.

Springdale & Edinger, Huntington Beach. Paul Eckroth, Aircraft ext. 1477, 714-846-1858.

IS IT NEWS?
CALL EXT. 4273
HAWTHORNE

Bob, Marge Richter Seek Old Automobile Emblems

Marge and Bob Richter have an unusual hobby. They collect automobile emblems.

These are not the logotypes or nameplates of car makes, but are the small tags and plates that advertise civic pride, club memberships, professional activities and the like. Such plates, fastened to automobile license frames, were once very popular in the United States and Europe, but are rarely seen today because decals have superseded the metal plates of yesterday.

The Richters became interested in the emblems four years ago while on a vacation trip in Europe. There such emblems are still common. They bought several and after returning home have continued their search for similar American emblems.

"They came in all sizes and types," Mrs. Richter said. "Many advertised communities. One of ours plugs Independence, Kansas, and was issued by the Independence Auto Club. It proudly claims that their city is 'The Buckle on the Oil Belt'."

Others in their collection are a beautiful example from Luxembourg that looks like a coat of arms, an AAA membership tag

from Cornhuskers Club of Iowa, and a curious one that they have never identified. It features a scimitar, crescent moon and star, all made of heavy metal. The words "Tripoli Motor Club" is engraved deeply into the sword. They have never found out if it really came from Tripoli or from a similarly named locality in the United States.

The Richters are looking for others to add to their collection. "We would particularly like to add some professional plates," she said. "Years ago many doctors, nurses, members of the fire department, and other professional people carried small plates denoting their work. However, we are actively seeking any kind of emblems."

Besides the enjoyment of searching and tracing the histories of their acquisitions, Mrs. Richter has found a fringe benefit to their collecting.

"I have always loved to browse in antique shops," she said. "I could never get my husband to stop until he got interested in old emblems. Now it is just wonderful. On a recent trip to the Mother Lode country we stopped at every shop along the way."

Mrs. Richter is a secretary in Contracts Management, Aircraft Division.



MARGE RICHTER
With part of collection.

NORTHROP NEWS

Vol. 29 No. 10

Published biweekly by Corporate Public Relations and Advertising for the employees of Northrop Corporation.

Editor-in-Chief, Bryan Welckersheimmer, **Editors**: Tony Cantafio, Electronics Division; Ivy Edmonds, Electro-Mechanical Division; Peter Toll, Ventura Division; Rosemary Hussey, Business Affairs.

Mailing address: Northrop News, 170/62, Northrop Corporation, 3901 West Broadway, Hawthorne, California 90250.

EDITOR'S NOTEBOOK

Anyone for throwing the caber? No? Then surely you're interested in tossing the sheaf—a sport we understand originated on the croft. If this still doesn't sound like your thing, then stick around and watch the Seann Tribubhas Reel, see 150 bagpipers toot what the Scots call music and watch kilts swirl in the Highland Fling.

All this comes in the mail from the United Scottish Societies, Inc., of Southern California who inform us that for a mere \$2—the low price in keeping with the traditional Scottish frugality—we can join kilted lasses and laddies at the 39th Annual Highland Gatherings and Games at Corsair Field, Santa Monica, on June 26.

We were at a loss to determine why the bonny group thought the News might be interested. Then we checked company telephone books to find enough Campbells, MacDonalds, Mackeys and assorted Scottish names to outfit a bagpipe band of our own—if NRC is willing.

This alone was sufficient for the News which likes to keep Northrop folk informed of interesting places to go. The real clincher, however, was a further statement proclaiming: "it is said that there are only two nationalities in the world—Scotsmen and those who wish they were."

Just for the record, a caber is a 17-foot-long, 100-pound log which is tossed end-over-end; the sheaf is a bundle like wheat straw; the croft is a farm; bagpipes are bagpipes; and kilts are dress-like clothing that look good on lassies and not so good on laddies. As for the Seann Tribubhas Reel, we haven't the remotest idea of what it is. But for just two bucks (kids are admitted free), you can find out for yourself. Hoot mon! Sounds like fun.

* * *

And for those who lean toward aviation, there is an announcement concerning an annual Antique Airplane Association fly-in to be held from Aug. 29 through Labor Day at Antique Field, located near Blakesburg, Iowa, which is, in turn, near Ottumwa. Through Sept. 5 the event will be confined to the owners of antique aircraft. On Labor Day the general public will be invited to have a look at the collected aircraft. The latter also includes a big air show featuring the cream of antique aerobatic and demonstration pilots from across the nation. In case you wonder if something like this attracts pilots, there is an announcement that on May 1-2 a fly-in to dedicate two new buildings there drew 71 aircraft.

Directory Lists All Personnel

Ventura personnel are now using a new personal telephone directory issued in April by Property Management and Communications, a group headed by Walt Mann.

The directory lists all Ventura Division personnel, notes their telephone extensions and mailing organizations. Separate sections list organizations numerically as well as alphabetically.

Key person in the development of the directory was Gloria Correy. Mrs. Correy typed all of the pages and was making last-minute corrections up to the point where the material was given to Reproduction for publishing.

"This 90-page directory is a big job and Gloria did an outstanding job on it," Mr. Mann said.

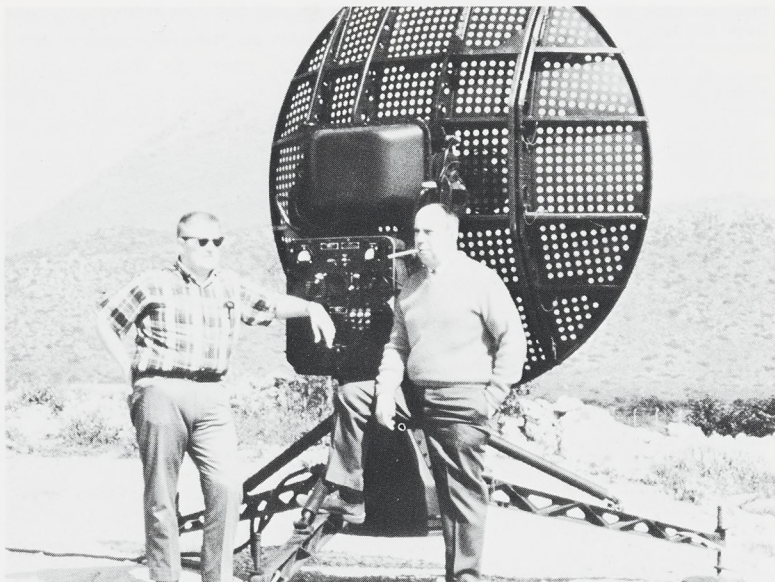
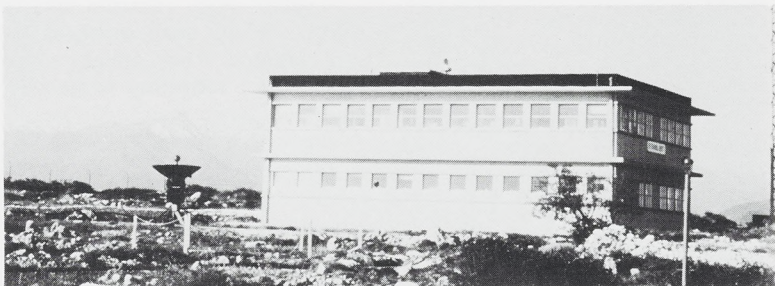
Changes Do Occur

He said it is impossible to keep pace with the organization changes and re-assignment of personnel, but the directory is the most accurate one possible.

Doug Sessions, manager of Reproduction, also praised the work of Mrs. Correy. He noted the quality of her efforts expedited the printing of the 1,500 copies.

Everyone in the Ventura facility who has a telephone at hand is given a copy of the directory. Copies are also sent to key personnel at the Corporate office and other Southern California divisions of Northrop.

The directory is an invaluable, fast guide to contacting personnel in the plant. Personnel are urged to use the directory for speedier communications.



TARGETS ARE refurbished in this area, above, while sea water-soaked parachutes dry in tower (background). Left, is main operational center with headquarters for flight operations. Photos are from color slides made by Ventura's Otto Goerisch who spent eight weeks assigned to the Crete site in the Mediterranean.

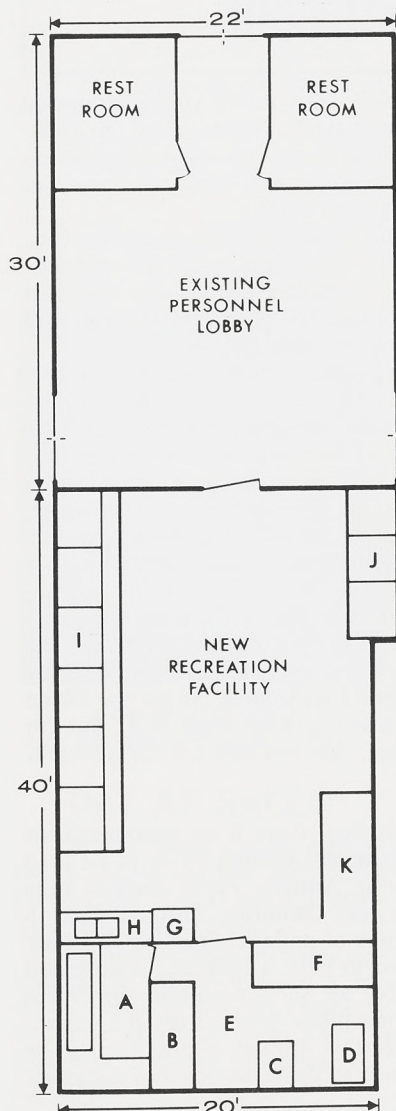


Northrop's Crete Operation

IN SERVICING the NATO Missile Firing Installation on Crete, Northrop personnel live in or near the city of Canea, where Moslem minarets, above photo, sit next to Greek Orthodox churches. The minarets date to Turkish occupation in the 1700's. Below, entrance to NAMFI base. At left, Frank Wilson and Dick Botzum with a radar dish used to track flights of Northrop targets on NAMFI Range.



IS IT NEWS?
CALL EXT. 1425
VENTURA



VENTURA DIVISION RECREATION CLUB ROUND-UP

Construction is scheduled to begin next week on the new Recreation Club facility in the Administration Building at Ventura.

"If we can get an adequate selection of bids then we should begin construction on June 1 with occupancy scheduled for July 1," explained Hal Hunsberger, chairman of the Rec Club's Facilities Committee.

Final plans show a major meeting room with a 600-square-foot capacity. Next to that main room will be a smaller room for use by the Rockhounds and then another darkroom facility for the Camera Club.

The Rec Club facilities will utilize the existing Personnel Lobby in the first floor of the Administration Building.

"By sharing the lobby we can use the outside door and take advantage of the Rec Club facility on weekends and evenings," Mr. Hunsberger said. Admission pro-

cedures are still being determined with the cooperation of the Security office.

Highlights of the new facility include use of existing rest rooms, adequate storage and work space, and the possibility of expansion (when needed) in the future.

The new facility will be located in part of the area now used by Procurement. Relocation of the few affected Procurement personnel will be done with "a minimum of inconvenience," noted Mr. Hunsberger.

"The Rec Club board of directors is pleased with the new arrangement and is looking forward to being able to use it," he added.

Working together on the plans with Mr. Hunsberger have been Chuck Simmers, the Rec Club's Industrial Relations representative, and Clyde Corder of Facilities.

The Recreation Club's service office in the Engineering Building will remain open. Kathy Miller is the Rec Club secretary for that office.



Ventura personnel who want to enjoy a full day at the horse races will have that opportunity on Saturday, June 26, at Hollywood Park.

The Recreation Club is participating in Northrop Day at Hollywood Park at the Inglewood race track. Other Northrop facilities are also involved.

Northrop will have 300 tickets to the event and reservations are strictly on a first-come, first-served basis.

Tickets, at \$6.25 per person, cover admission to the clubhouse, a reserved clubhouse seat, and a sumptuous buffet luncheon served from 11:30 a.m. to 1:30 p.m. in the Thoroughbred Room of the clubhouse.

If 38 Ventura personnel sign up for the event then round trip bus service will be provided at a nominal charge.

Reservations can be obtained at the Rec Club office in the Engineering Building. Office hours are 11 a.m. to 1 p.m. on Monday, Thursday and Friday.



Lunch hour sports enthusiasts will have an opportunity to play bocci, shuffleboard, ping pong, or horseshoes soon. But there is one major problem.

"We don't know how many people want to play what at the noon break," said Rec Club Vice President Bill Umbenhauer. "As soon as we know then we can start lining up locations and equipment," he added.

Bocci is already under way, in limited numbers, and as soon as more players become fully acquainted with the lawn bowling-type sport then a tournament will be planned.

Shuffleboarders, ping pong players and horseshoe throwers

are invited to make their interests known to Pat Cloward, Rec Club chairman of games-at-large, ext. 295.

Other queries can be directed to Mr. Umbenhauer, ext. 1211.



Nineteen men will wear the Northrop uniform when the regular season of the Conejo Recreation and Park District-sponsored Independent Fast Pitch League begins.

The Northrop club played two practice games in recent days and will open play in the nine-team league next week.

Manager Claude Vincelette, who uses himself as a defensive utility man, has several starters back from last year's team which finished a close second in the B League. This year there is just one league.

Others on the roster include infielders Ken Conger, Dave Coe, Ralph Reeves, Chuck Brune, Pat Cloward, Bob Feakins, Dean Wolf, Pat Schlender, Jim Karas, Tom Pappas and Tom Leichtfuss.

Several of these men can double as pitchers or catchers. They are Mr. Coe, Mr. Brune, Mr. Schlender, Mr. Cloward and Mr. Stanford.

Outfielders on the team are Gene Linhart, Ivan Blum, Bob Jones, Junior Salas, Ed Ray and Lou Gabriel.

NORTHROP NEWS

VENTURA DIVISION EDITION

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Vol. 29, No. 11

June 9, 1971



IN THE EMERGENCY CONTROL CENTER

Clark DeSpain and Welko Gasich, right, checking facility plan, Chuck Simmers monitors radios, rear.

Drewery, Georgia, West Top Latest List of Suggesters

Norris Drewery, Bob Georgia and Midge West led the list of cash recipients in the most recent Ventura Division Suggestion Award Program awards.

Mr. Drewery, of the Maintenance Department, earned \$50 for suggesting a better way to heat water in the alodine area.

Money-saving use of cherry rivets in 747 assembly earned Mr. Georgia a \$60 bonus and Mrs. West received \$52 for suggesting more economical use of Stanley blades in 747 Plastics Lamination.

Ron Lischak picked up \$42 for a suggestion to modify the minimum/maximum control foam in the Assembly Control, Target and Seat area.

Awarded \$20 for suggesting a more efficient shop aid in Production Test was Frances Cefaratti. John Landis received \$12.

Mr. Landis also earned \$10 each for two other ideas which were implemented. Others receiving \$10 were A. N. Ruhl, Gene Colborn, Dewayne Ratcliffe, Ken Erwin, Wilburn Leeds, and Pat Meltzer.

MANAGEMENT CLUB FINALIZING PLANS FOR 'GRAND LAND SINGERS'

Plans are now being finalized for the Ventura Division Management Club - sponsored concert of the 100-voice Grand Land Singers at 8 p.m., Aug. 7, in the Oxnard Community Center.

Management Club members, their families and guests will enjoy a 6 p.m. buffet dinner before the performance of patriotic and folk songs.

The Oxnard Community Center seats 1,600 people and half of those seats are anticipated will be filled by Ventura personnel and their families.

The remaining seats will be sold to interested persons throughout Ventura County at \$1 per seat (50 cents for children under 18) to help cover costs of renting the facilities and providing the singers.

The Grand Land Singers are well-known throughout the country. The group of Cerritos College young adults has performed at the Hollywood Bowl, Los Angeles Music Center, Disneyland, Anaheim Convention Center and before 250,000 persons at the Cherry Blossom Festival in Washington, D.C.

The Freedoms Foundation at Valley Forge named the group

Cost-Conscious Venturans Share \$2,836 in Awards

Cost-conscious Ventura Division personnel submitted 198 suggestions in the past six months and nearly 40 per cent of the ideas paid off in cash for the suggester.

Walt Claycomb, Suggestion Award Program coordinator, reports that \$2,836 was awarded to economy-minded Ventura personnel in the program.

Suggestions which do not receive awards include those which, unknown to the suggester, have already been put forth for consideration, would cost too much to implement, or are not feasible and too general in nature. But every suggestion receives careful scrutiny.

Savings from Employee Suggestions have been a big factor in the Ventura Division's Cost Improvement Program.

"All employees are urged to think of better ways and means to do the job and then write their ideas down on the suggestion forms. Remember, your ideas can pay off for you and your company," Mr. Claycomb added.

principal awardee in Community Programs among 500 entrants across the U.S. for their community and campus program "Discover Your America."

"I can well understand your pride in Project Patriotism," President Richard M. Nixon wrote the group in praise of their efforts to restore constructive activity to the image of America's youth.

FOR DISASTER

Management Has A Plan, Hopes Never to Use It

If an earthquake similar to the recent one which caused widespread damage in the San Fernando Valley were to strike the Ventura Division, what steps would be taken to assure the safety of all Northrop personnel?

What about a major fire? Or explosion? Or similar in-plant catastrophe? Or even a civil disturbance immediately adjacent to the facility?

The answers are all spelled out in a Corporate office-approved Industrial Emergency Plan.

One of The Plan's keystones is an Emergency Control Center (ECC). The two-room center features an Emergency Communications Center filled with radio, electronic and telephonic gear and an adjoining Emergency Operations Room.

In the communications center are speakers monitoring the local sheriff's radio band, California Highway Patrol band and Fire Department band as well as an am/fm radio and television set for monitoring news coverage.

There is also a public address system permitting direct communication with employees either by area or on a total facility basis.

Monitoring and reporting the status of in-plant emergencies is the primary function of the Plant Protection radio system. The system's base stations at the Emer-

gency Control Center and main guard office are augmented by portable units.

The Transportation Radio System, a back-up for Plant Protection radios, also can be operated from the ECC for such transportation support operations as personnel evacuation and transport of emergency supplies and equipment.

A major advantage of the Transportation radio system is that the radios are mounted in vehicles which can be located strategically for communication outside the plant.

A direct line also connects the Ventura Division to the Ventura County Fire Department's Battalion 3 (Conejo Valley) dispatcher who can send fire, rescue or ambulance service immediately.

The operations room is separated from the communications center by glass to reduce noise levels. The two rooms are connected by a glass partition.

(See EMERGENCY, page 6)

BULLETIN

A full-color brochure containing a pictorial history of famous aircraft developed by Northrop Corporation since 1939 has been prepared for sale to employees for \$1 per copy.

See page 2 for full details.

Northrop Acquires Wilcox From American Standard

Northrop has taken another step in its corporate program of increasing commercial and non-military business by acquiring the assets of American Standard's Wilcox Division at Kansas City, Mo., and all of the outstanding stock of World Wide Wilcox, its international sales affiliate at McLean, Va.

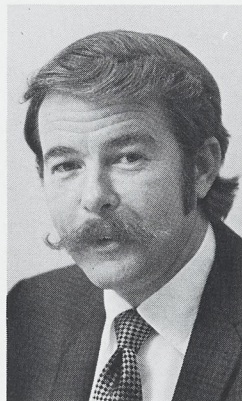
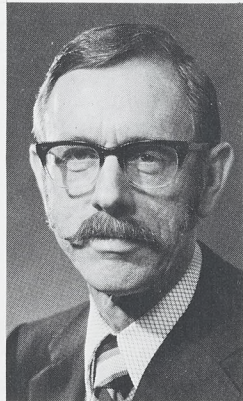
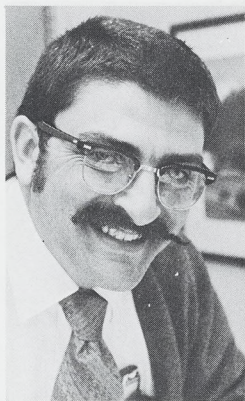
The combined sales of the two Wilcox organizations exceeded \$15 million in 1970. Their business primarily is in the commercial aviation communication and navigation areas. Wilcox has been a

quality supplier of electronic equipment for more than 35 yrs.

In making the announcement, Thomas V. Jones, president, said, "Northrop plans to operate the two new units as a wholly owned subsidiary to be known as Wilcox Electric, Inc. This new subsidiary will report organizationally to Harrison Van Aken, Northrop vice president and president of The Hallicrafters Co."

Northrop now has major engineering and manufacturing facilities in seven states and the District of Columbia.

How Did You Look 'Way Back in 1963?



"THE STYLE IS the man himself," said French naturalist and author Georges Louis LeClerc de Buffon upon admission to the French Academy in 1753. And these three Ventura Division men bear that out. Recent photographs of the trio sporting moustaches are compared with

photos made eight years ago. From left, Gene Linhart is an engineering specialist in Target Systems. Bob Cole is manager of Master Scheduling and Program Performance Measurement Systems. Ken Conger is an engineer working on new target applications.

IRS Warns Of Possible Tax Problem

The Internal Revenue Service has asked Northrop Corporation to help in alerting its personnel to the possibility that, due to changes in the federal withholding system, some may not have enough individual income tax withheld during 1971.

While most employees will find that withholding and actual tax liability will be fairly even, some may find their annual withholding will fall short of their tax liability.

This could mean an unexpectedly large amount of tax at the end of the year.

Four Groups

Four groups of employees are especially effected by the prospect of under-withholding. These include: each employee who expects to earn more than \$11,500 in 1971 and expects to claim the \$1,500 standard deduction or itemized deductions totaling less than 13 per cent of their salaries; each single employee who expects to earn \$15,000 or more in 1971; each married employee who expects to earn \$25,000 in 1971 and whose spouse is not employed; and all working couples.

The IRS suggests each employee estimate his 1971 tax liability and compare it to an estimate of total 1971 withholding.

Those who find they need more withholding should file new exemption certificates (Form W-4), claiming fewer exemptions, or ask for additional amounts of withholding from weekly salaries. An alternative would be to file estimated tax returns and make installment tax payments to the IRS during the year.

JONES ELECTED TO AIAA BOARD

Northrop President Thomas V. Jones has again been elected to the board of governors of the Aerospace Industries Association of America, Inc.

Membership on the board is rotated annually. Mr. Jones previously has served five terms on the AIAA board.



AIRCRAFT PICTORIAL HISTORY COMES OFF THE PRESS
Key people involved in project, from left, Gary McClellan, Don Baker, Harold Pershing, Wayne Tischbern.

'Flying Through The Years' Depicts Story of Famous Northrop Aircraft

A pictorial history of famous Northrop aircraft has been published and will be available to all Northrop Corporation personnel, past and present, for purchase beginning Monday, June 14.

Copies of the attractive full-color brochure, titled "Flying Through the Years," may be obtained through Northrop Personnel Activities outlets at all facilities at a special price of \$1 per copy.

The brochure contains 44 pages and pictures, in full color, 20 history-making aircraft designed, manufactured and flight tested by Northrop since 1939, together with descriptions of special features, dimensions, and powerplant data. Also described are the design, production, or performance "firsts" established by each aircraft.

Created and produced by the Aircraft Division's Graphic Operations Department, publication of "Flying Through the Years" was enthusiastically supported by F. W. Lloyd, Northrop vice president and Aircraft Division general manager. Mr. Lloyd is a veteran

of 30 years of Northrop service, a man who was personally involved with many of the aircraft featured.

"I regard this publication as a significant historical record of Northrop's contribution to aeronautics and aerospace science as well as a splendid testimonial to the thousands of Northrop employees whose skills, talents, and dedication made it all possible," Mr. Lloyd said.

"And I'm sure that all Northropers who share memories of these great aircraft will welcome the chance to relive the days when they went from the drawing boards to the production line," he said.

"Flying Through the Years" is also a tribute to the patience and dedication of Harold Pershing, Graphic Operations art director and a 25-year Northrop veteran, who for many years has planned and worked to develop just such a history, mostly on his own as a labor of love.

Among the knotty problems faced by Mr. Pershing in developing such a history was to au-

thenticate the color schemes used for markings, service insignia, striping, and other parts of each aircraft. This was no easy task, since the only available photographs of most of these early aircraft were black and white prints.

However, by making innumerable telephone calls to many Northrop veterans, he was able to track down several of the people who had worked on each early aircraft, some of whom had retired or left the company.

By careful cross-checking and comparing notes, he was successful in determining the authentic colors used on each of the 20 aircraft featured in the brochure.

Using his skills as a first-rate artist, Mr. Pershing then painstakingly painted the black and white photographic prints to reflect the proper colors. He then double-checked the results with these people who had actually built, tested and flown them.

Also due credit for fine work on the project are the Aircraft Division Graphics technicians who did the color printing and binding.

Help Sought In Locating Ex-Employees

Northrop Corporation's Savings Plans Administration office is seeking the help of Northrop employees in locating former employees to advise them of checks being held for them.

These checks, some in sizable amounts, are due the former employees from contributions made to Northrop Savings Plans.

Employees who know any of the individuals named below are asked to have them contact the Savings Plans office at ext. 302 at the Corporate office, Century City.

Those sought are Kenneth C. Johnson, R. H. Nunnery, Ronald Hladek, L. R. Diaz, F. O. White Jr., H. E. Niles, L. H. Echols, D. Marshall, Solomon Espinosa, W. H. Davis, C. D. Hall, Mildred Valdez, R. W. Selway, C. E. Woods, S. E. Howell, F. J. Edwards.

Also C. L. Barrack, R. E. Johnson, O. P. Horstman, R. W. Porter, L. R. Goldson, C. H. Victorino, Melvin Smith Jr., Richard Broussard, J. T. Minoque, T. R. Mercer, W. M. MacDougall, B. L. Willis, Anthony Vallone, V. G. Schnick, Jessie James, C. Hunt Jr.

A. J. McKernan, W. B. Rogers, J. O. Fagala, D. L. LaRue, Kent Ogasawara, J. L. Nichols, C. S. Ostrowski, D. C. Canfield, B. E. Snyder, and R. L. Grace.

NRC Slates Night At New Facility

Northrop Recreation Club has moved quickly to reserve the Southland's newest recreation attraction — Magic Mountain—for an all-Northrop private party Sept. 25.

Plans call for the new center at Valencia to be reserved exclusively for Northrop family members from 7 p.m. on that date. September 25 was one of the first dates made available for private parties at Magic Mountain.

NRC will offer tickets to all employees at all Northrop facilities in California for just \$4 each. This is a savings of about \$1 over general public admission prices.

Northrop-Sponsored Merit Scholarships Presented to Daughters

Two Northrop daughters, Marie Shively and Wendy Willson, have been presented National Merit Scholarships sponsored by Northrop Corporation. The awards

bring to six the number of scholarships won by Northrop sons and daughters this year.

Miss Willson, the daughter of James D. Willson of the Corporate

office, received her scholarship from Dr. Donald Hicks, Northrop vice president — Research and Technology.

Miss Shively, the daughter of Marian E. Shively of Hallcrafters, received her honors from Harrison Van Aken, Northrop vice president and president of Hallcrafters.

Scheduled to graduate this year from Sacred Heart of Mary High School in Rolling Meadows, Ill., Miss Shively plans to enroll at Michigan State University to study languages.

Medical Career

A senior at Beverly Hills High School, Miss Willson will enter Swarthmore College (Pa.) to study premedicine in following her plans for becoming a physician.

Miss Willson's primary interest during her secondary school years has been music. She has performed with the school orchestra four years and served as its concertmaster for two years.

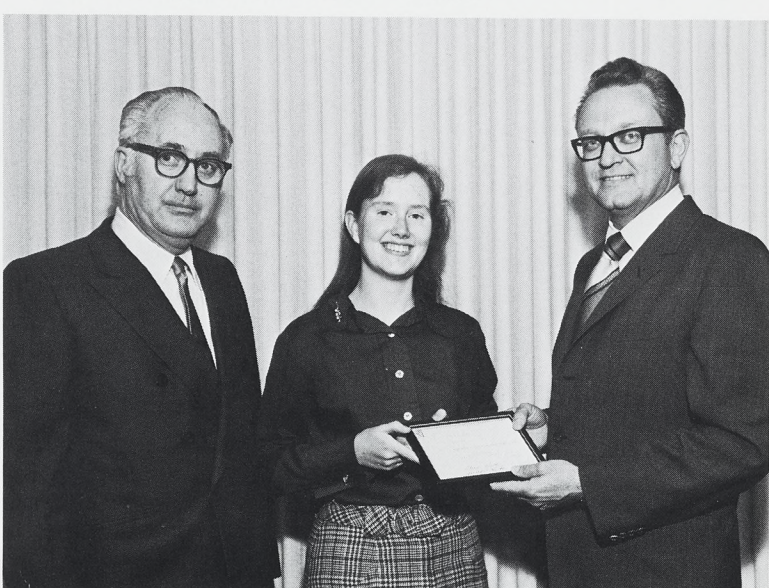
She has performed solo violin concerti with the group and with the Beverly Hills Community Orchestra.

A 1970 delegate to California

Girls' State, Miss Willson also shares an interest in government. She has held numerous elective student body offices in high school.



MARIE SHIVELY ACCEPTS SCHOLARSHIP
Harrison Van Aken makes presentation as Mrs. Marian Shively observes.



WENDY WILLSON RECEIVES SCHOLARSHIP
Dr. Donald Hicks, right, does the honors as James D. Willson looks on.





COLLECTOR OF 'DEPRESSION GLASS'
Rene Cassatt displays just a few of many items in her collection.

Once Free Glassware Now Commands a Hefty Price

Back about 40 years ago you could buy a box of "Mother's Oats" for 25 cents and find a free cup and saucer buried in the contents.

Today you can still find those same cups and saucers, but not for free. Instead, you'll pay from \$3.50 to \$12.50 for them in antique shops.

Rene Cassatt, manufacturing cost analyst with the Aircraft Division, is one of the many collectors who specializes in what antique fanciers call "depression glass." This not only includes the Mother's Oats dishes, but all kinds of glassware given away as premiums in the 1920's and 1930's.

Mrs. Cassatt began as a coin collector, but after her collection was stolen, she switched to collecting candle holders.

The Beginning

Then one day, while candlestick hunting in an antique shop, she saw an old Mother's Oats plate in the amber Madrid pattern and recalled her mother collecting a complete set.

She bought the plate as a remembrance of her childhood. "And then I got carried away," she recalled. "I began haunting garage sales, flea markets, and antique shops looking for more pieces."

Today she has more than 1,000 pieces in all five colors of the Madrid pattern, one of the most popular. They are difficult to find today, despite the large

CREDIT UNION OFFERS LOANS

With the approaching end of the school year and summer vacation time at hand, Northrop Credit Union is reminding Northrop employees of special services it offers.

For example, the Credit Union can arrange low-cost loans for mobile homes and travel trailers, both new and used; finance at low rates camper vehicles, if they are combined with a truck; and even grant personal loans for vacation purposes to eligible members.

Call the Credit Union at ext. 1117 in Hawthorne or contact the local Credit Union representatives for further information.

number that was distributed. Many have been broken during the many years that have passed since they were so popular.

As an addition to her glass collection, Mrs. Cassatt branched off into collecting butter dishes and is more enthusiastic about that now than she is in her collection of depression glass.

Her butter dishes, dome shaped with covers, now number over 200 and she is avidly searching for more.

Her entire collection of glassware now fills five china cabinets in her living room and has overflowed to many open shelves. "But a collector is never satisfied," she said. "No matter how much you have, you are always seeking more."

SHAFFER'S UNUSUAL HOBBY

Restoring Old Military Vehicles

That GI vehicle bouncing across the desert like something left over from "Rat Patrol" is just Joe Shaffer enjoying his hobby of collecting old Army vehicles.

Joe, who is foreman of the Electro-Mechanical Division's Opto-Mechanical Assembly, didn't start out to collect old vehicles. He just wanted desert transportation.

Surplus military vehicles seemed the answer. He got one—and detested it as he did the desert. The car rode too hard and the desert was too dry. He only went because he loved to shoot and the desert afforded the only place he could go and get away from civilization.

As time went on he grew to

love both the vehicle and the desert. About this time he decided that he would like a command car and started looking for one.

Ten years ago he saw a command car body beside the road near Barstow. The owner refused to sell unless Joe took all he had which was three complete vehicles and parts enough to put together another.

In Olive Drab

He completely restored one of the command cars, sandblasting it down to bare metal and repainting it with olive drab paint. The finished car was added to his private "motor pool" along with an ambulance and a one-half ton open cab pickup.

Today these kinds of vehicles

have become so scarce and valuable that he can no longer afford to tear them up on his desert jaunts. He found other desert transportation and the old military vehicles are kept as part of his collection.

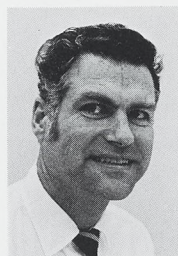
Parts are difficult to obtain. However, he has a good stock himself and not so long ago was able to find a complete set of big knobby tires for them at a filling station where he stopped for gas.

A lot of his desert traveling is done with the Long Range Desert Group and his command car license plate reads "LRDG-1" which is the group's initials. The original LRDG was a wheeled commando group in Libya during World War II. This group inspired the "Rat Patrol" TV Series.



JOE SHAFFER AT WHEEL OF RESTORED COMMAND CAR
He also has an ambulance and a half-ton open cab pickup truck.

WE ASKED THEM — Should Parents Be Responsible for Their Children's Acts?



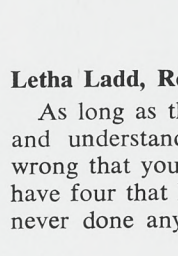
Maurice M. Hardy, engineering specialist, Aircraft:

I think parents should be responsible. I especially think parents should be forced to pay for any damage their children do. Also children should be disciplined more. Then there would be fewer problems for which parents would be responsible.



Denise Reeves, secretary, Aircraft:

That is a difficult question. But I think if they are going to let young adults vote at 18, they should be made responsible for all their acts at that age. Up to 18, parents should be definitely responsible.



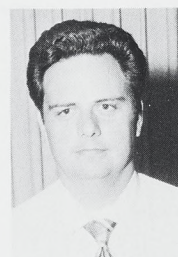
Letha Ladd, Reproduction, Electro-Mechanical:

As long as they are under age, yes. With love and understanding children won't do anything wrong that you will have to be responsible for. I have four that I am very proud of and they have never done anything that I am ashamed of.



William Willis, inspector, Electro-Mechanical:

Up to a certain age, parents should certainly be responsible for acts of their children. When they are in their teens parents should especially know where their children are all the time and who they are running around with.



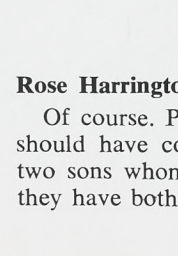
Bill Thomas, acceptance test inspector, Electronics:

I certainly do. Too many people at the present time are leaving that responsibility to the schools, which I feel is a grave mistake.



Ruth Tomlin, typist, Electronics:

Most of them. I feel I am responsible for my child's actions as long as she lives in my household and depends upon me for a living.



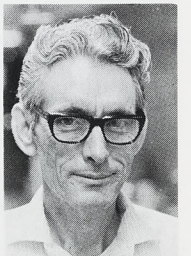
Rose Harrington, plastic laminator, Ventura:

Of course. Parents have full responsibility and should have control over their children. I have two sons whom I gave full responsibility to and they have both grown up to be good citizens.



Jim Foster, MQM-74A structural assembler, Ventura:

Absolutely. If kids were taught at home how to act in public they wouldn't be as bad as they are. Especially on sex. That should be taught at home, too.



Classified

Classified ad service is provided free of charge to all Northrop personnel. Ads for agencies, commercial enterprises and private businesses are not accepted. The Northrop News reserves the right to edit or omit ads. Ads are limited to two items per person per issue; each category to be submitted on separate form. Deadline is noon Wednesday, one week before publication.

Automobiles For Sale

- Cutlass**, 1966, 38,000 mi., \$750; Camaro, 1969, 38,000 mi., \$1,595, all min. bids. Credit Union ext. 1117. A
- Aston Martin**, DB-4, new paint & rings, \$3,000. 213-248-0426. A
- Alfa Romeo**, 1965 Coupe GT, \$950. 213-328-5332. A
- Volkswagen**, 1965 1500S, sq. back, w/w new tires, \$750. 213-542-4872. A
- Volkswagen**, 1963, new brakes, all synchro. trans., \$95. 213-326-2590. A
- Pickup**, 1959 Chev. El Camino, new radiator, o/hailed 3-spd., tach, \$450. 213-324-0449. A
- Comet**, 1962 Super Sport, \$400. 213-679-7687. A
- Chevrolet**, 1963 Impala, all extras, a/c, \$325. 213-377-1478. A
- Cadillac**, 1967, Sedan DeVille, all power, AM-FM stereo, \$3,100. 213-635-3824. A
- Ranch Wagon**, 1965 Ford, r/h, power, \$650; station wagon, 1965 Pontiac, a/c, r/h, \$950. 213-378-1561. A
- Toyota**, 1968 Corona, 2-dr., 4-spd. trans., 37,000 mi., \$1,000. 213-327-0883. A
- Volkswagen**, 1967, 1600 eng., \$975. 213-328-7989. A
- Javelin**, 1969, vinyl top, \$2,100. 213-371-7425. A
- Dune Buggy**, Max mod. 1969 Corvair eng., licensed for hwy., \$1,100. 213-596-0370. A
- Volkswagen**, 1969 Squareback, \$1,800. 213-374-2188. A
- Karmann Ghia**, 1970, 10,600 mi., extras, under warranty, \$1,800. 213-641-6428. A
- Renault**, 1964 R8, \$280. 213-375-5629. A
- Cadillac**, 1965 DeVille convt., full power, fact. air, \$1,150. 213-663-3622. A
- Chevrolet**, 1940, w/1956 rebilt. eng., \$150; Renault Dauphine, w/1962 rebilt. eng., \$100. 213-329-9484. A
- Mercury**, 1966 Comet, 4-dr. sed., r/h, auto. trans., V-8, \$700. 213-865-8235. A
- Volkswagen**, 1968, radio, 37,000 mi., \$1,175. 213-391-3122. A
- Corvette**, 1965, f/b, air, posi-tract, 327/365 h.p., \$1,675. 213-831-4586. A
- Pontiac**, 1965 GTO, 4-spd., mag whls., air shocks, \$695. 714-521-1516. A
- Station Wagon**, 1964 Pontiac Tempest Custom, 6, r/h, auto. trans., lug. rack, \$395. 213-962-1821. A
- Ford**, 1964 Fairlane 500, 260 cu. in., 46,000 mi., \$500. 213-424-7351. A
- Mustang**, Boss-302, 290 h.p., 18,000 mi., radio, p/s, pwr. d/brakes, spoilers front & rear, \$2,700. 213-532-5690. A
- Volkswagen**, 1967, orig. owner, radio, \$895. 213-241-7384. A

Household Items For Sale

- Dining Room Table** & 6 chairs, antique white w/blue uphol., \$150. 213-670-6970. B
- Bed**, twin, box spring, mattress w/frame, white rattan h/board, white rayon silk bedspread, typewriter table, steel, \$35. 213-375-4635. B
- Knitting Machine**, Brother, \$50. 213-461-2392. B
- Sofa**, pr., white, 6', w/square walnut corner table, \$195; washer & dryer, elec., \$40 ea. 213-378-7166. B
- Table**, w/6 stack tables, walnut, octagon, \$25. 213-329-9195. B
- Bar**, black vinyl covered, 5' long, 2 stools, \$100. 213-831-1024. B
- High Chair**, crib & mattress, other misc. baby items, \$52 or sell sep. 213-324-2992. B
- Dining Table**, mahogany, pad, extra leaf, 6 matching chairs, \$45; coffee table, 2 matching end tables, solid Italian marble w/ mahogany base, \$75. Box 1101. B
- Refrigerator**, Hotpoint, 17 cu. ft., \$50. 213-474-5845. B

Miscellaneous For Sale

- Mobile Home**, 10x55, 2-bdrm., patio, carport, bltins, South Bay Mobile Home Park, Torrance, \$4,250. 213-371-4876. C
- Stereo**, Philco, walnut cabinet, \$65. 213-673-2332. C
- Valves**, pipe & tubing fittings, copper, \$32.50. 213-376-4831. C
- House**, 2-bdrm., new roof & exterior paint, cpts., dps., assume FHA 6% loan, \$2,000 dn., 2 miles from Hawthorne plant, \$21,900. 213-327-6373. C
- Bicycle Seat**, \$3. 213-672-2338. C
- Target Revolver**, .22 cal. Smith & Wesson K-22, adjust. sights, \$85. 213-641-6322. C
- Phonograph**, portable Philco, auto. BSR 4-spd. changer, diamond stylus, bltin spkr. & jacks, \$20. 714-894-2587. C
- Mini Bike**, Cat 400 EL, 4 h.p., front & back shocks, d/brake, \$110. 213-431-9620. C
- Piano**, Gulbransen studio console, \$350. 213-390-2834. C
- Motorcycle**, 1968 Yamaha, 250 Enduro, dirt ready, \$450. 213-323-1929. C

Miscellaneous For Sale

- Bicycle**, boy's 26", lightweight, \$20. 213-324-8853. C
- Piano**, upright, recently refinished, \$200. 213-696-7529. C
- Crypt**, dbble. internment, in New Capistrano Gardens, Inglewood Park Cemetery, \$1,200. 213-675-5574. C
- Speaker**, 15" replacement for Fender bassman ampl., \$25. 213-675-5522. C
- Acreage**, 40 acres, south of Lake Isabella in Sequoia Forest, 10% dn., \$530 acre. 213-639-7802, 213-542-4175. C
- Lot**, 82x130, in Havasu City, Ariz., view of lake & mountains, improved area, low int., \$10,500. 213-323-7877. C
- Mini Bike**, Taco, 3 h.p., Briggs eng. just o/hailed, \$70. 213-371-7274. C
- Guitars**, elec. Fender Coronado w/case, \$175; 12-string Acoustic, mahogany, spruce top, \$65. 213-378-1658. C
- Rabbits**, young, newly weaned, \$1. 213-325-5609. C
- Picture**, 2'2" x 4'4" walnut framed desert scene, in reds, & oranges & browns, \$10. 213-676-3050. C
- Reed Organ**, antique, Kimball, golden oak, \$325; motorcycle, 1968 Honda CL90, \$125. 213-372-4907. C
- Fencing**, 30' 48" chain link w/some fittings, \$8. 213-328-0887. C
- Amplifier**, stereo, Scott, 80 W., tubes, \$75. 213-396-4847. C
- Typewriter**, Royal elec., \$50. 213-461-2392. C
- Adding Machine**, 8-col. manual, paper tape, \$15. 213-545-6719. C
- Piano**, 6' grand, Sohmer, teakwood, \$1,000. 213-679-9195. C
- Playpen**, Cosco nylon mesh-type, \$8; shotgun, 12 ga. Remington 1100 skeet, \$130. 213-327-4585. C
- Horse**, reg. thorobred jumper, 7 yrs. old, 17.1 hands, bay, \$1,500. 213-433-0081, 213-437-9428. C
- Guitar**, elec., St. George solid body, amplifier & 12" coax spkr. in lge. enclosure, \$60. 213-377-4623. C
- Drum Set**, 4-pc., red sparkle pearl, \$135. 213-775-7617. C
- Flying Magazines**, British, 1933-1968, over 170 copies, \$40. 213-375-4312. C
- Motorcycle**, 1969 Honda Trail 90, only used 850 mi., car bumper racks, windshield, \$250. 213-375-6467. C
- Motorcycle**, Honda 300 Super Hawk, new paint & tires, windshield, helmet, \$350; kittens, Siamese, seal point, avail. June 20, \$10. 213-675-1514. C
- TV**, 19" Westinghouse, new tubes, \$10. 213-474-5845. C
- Spray Gun** & compressor, \$35; tank, refillable propane-gas, small, \$4. 213-426-4060. C
- Trailer Hitch**, bumper-type, \$5; painting, abstract, lge. orig., \$15. 213-679-1631. C
- Pup**, sheltie, AKC, female, tri-color, champ. blood line, \$75. 213-320-4749. C
- Acreage**, 2 1/2 acres fronting on new Adelanto pvt. airport, \$75 dn., \$75 mo., \$7,500; 5 acres, Adelanto City, water & elec., \$100 dn., \$100 mo., \$10,000. 213-378-1026. C
- Kittens**, Siamese, seal point, \$15. 213-378-3529. C
- Tape Recorder**, stereo, Concord mod. 550, 2 mikes, 7 1/2 & 3 3/4 ips, will do sound-on-sound & trans-a-track recording, use as PA sys., takes up to 7" tapes, other access., \$105. 213-679-2864. C
- Trailer**, utility, 4x7x3', w/spare tire & wheel, \$150; dark room photo eqpt., complete, enlarger, printer, safe light, \$85. 213-645-6494. C
- Snow Tires**, 6.00x13, \$5 ea. 213-785-1405. C

Wanted to Buy

- Axles**, 2 ea., 7"x7/6", for fabricating car carrying trailer, reasonable. 213-323-4257. D
- Floor Jack**, garage-type, reasonable, 714-539-5812. D
- Camera**, Leica M-2. 213-377-4623. D
- Electronic Test Equipment** & tube tester. 213-676-8271. D
- Camper Shell**, for 1971 Datsun pickup, new or used. 213-370-7749. D
- Van**, Ford, Chev., VW or Dodge, in fair condition, reasonable, not older than 1967. 213-320-6685. D
- Utility Trailer**, strong, price, particulars. 213-378-5494. D
- Bicycle**, 26", boy's, or racer, any type of exercise equipment. 213-644-3429. D
- Bicycle**, tandem, prefer 3-spd. 213-832-1684. D

Free (To Be Given Away)

- Kittens**, male. 213-676-7766. F

Rentals Offered

- House**, Bass Lake, \$150 wk., \$45 w/end. 213-374-3702. G
- Cabin**, Green Valley Lake, \$65 wk., \$45 w/end. 213-320-2002. G
- Cabin**, Moonridge, Big Bear Lake, 3-bdrm., 2 baths, f/place, completely furn., family only, \$125 wk., \$50 w/end. 213-326-7232. G
- Cottage**, Ocean Bch., San Diego, near Mission Bay, \$75 wk. 714-826-2007. G
- Cabin**, Lake Arrowhead, 3-bdrm., color TV, f/place, comp. furn., family only, \$125 wk., \$60 w/end. 213-831-1745. G
- Motor Home**, 22', sleeps 7, self-contained, fully equipped, 4000 W. gen., dual air, insurance, \$200 wk., \$75 w/end, 5c mile. 714-892-7373. G
- Motor Home**, 1971 Islander, sleeps 8, dbble. a/c, radio w/stereo 8-track tape, fully insured, \$290 wk. & 7c mi. 213-375-6971. G

DISTINGUISHED SERVICE

Los Angeles YMCA Honors Leonard Kane

Leonard Kane, an Aircraft Division technical quality specialist, has received the highest honor paid by the Young Men's Christian Association of Metropolitan Los Angeles for voluntary service.

Mr. Kane has been recognized as "Mr. Torrance YMCA" and his name has been imprinted in the Golden Book of Distinguished Service as one who "lives and loves and labors for others."

Honors for Mr. Kane cap more than 40 years of special interest in the Southeast Y Branch and youth throughout Los Angeles

County.

At the age of nine, Mr. Kane joined the Southeast Y as a club member. Subsequently, he has been a camper, camp leader and director, committeeman, part-time staff member and board member.

His primary interest for the past 14 years has been the Torrance Family YMCA. As one of this group's board members, he has chaired nearly every standing committee. For five years, he was a lay Gray-Y director and twice served as chief of the branch's largest (about 1,200 sons and

dads) Y-Indian Guide nation.

Interest in the YMCA has been a Kane family pastime. His sons, Ken, 19; Rick, 16, and David, 12, and his daughter Sharon, 17, have been active Y participants and leaders. His wife, Vida, has performed many volunteer Y services through the years.

"You might say the Y has been my vital interest through life and I can certainly say some of my most memorable moments have been associated with the Y," Mr. Kane says. "I know of no award greater than to have some young adult come to me and recall happy memories of past events we have shared."

Champion of Youth

Mr. Kane is quick to defend today's youth with those who would lump them all into a derogatory category.

"Most youngsters are sharp and have a sound basic opinion of what they seek in life. What they need more than anything else is understanding and adult guidance," he says. "We need more and more adults who are willing to get involved, to try to understand and help young people. From this willingness to become involved grows mutual respect, something we need now more than ever before."

The 17-year Northrop veteran has no intention of slacking his voluntary efforts now. "As long as there is a need for people like me, then I'll be around to do what I can," he adds.



LEONARD KANE, LEFT, AT AWARD PRESENTATION
Doing the honors is Dr. Wing Mar, National Council, YMCA.

Rides and Riders

7:30 a.m. — 4:12 p.m.

Rides Wanted

Vicinity of Century bet. Inglewood Ave. & Hawthorne Blvd., Inglewood. Vi Boddy, Aircraft ext. 4212, 213-677-6948.

8 a.m. — 4:42 p.m.

Western & Palos Verdes Dr. N., Palos Verdes. Delores Hensler, EMD Anaheim ext. 281, 714-635-1193.

Springdale & Edinger, Huntington Beach. Paul Eckroth, Aircraft ext. 1477, 714-846-1858.

Rides Offered

8 a.m. — 4:42 p.m.

Springdale & Edinger, Huntington Beach. Paul Eckroth, Aircraft ext. 1477, 714-846-1858.

Child Care

Babysitting, my home, Mon.-Fri., near Northrop, pre-school age. 213-644-3775. I

Child Care Offered, my home, any age, all hours, Redondo Bch. 213-372-0536. I

Lost

Desk Set, rattlesnake, from USAF office, \$5 reward. 213-633-1353. J

Found

Tie Tack, by Sunny Hills High School, Fullerton, adult education div., claim at the office by 10 June. K

Personals

My sincere thanks to all my friends at Northrop for the gifts & most enjoyable retirement party. WOODY JONES. L

To our many friends at Northrop, by your kindness & understanding you have made the road a little less rough in our bereavement. THE BLAKENEY FAMILY. L

We wish to express our appreciation to all our friends at Northrop for all the cards, flowers, gifts, & phone calls received during Bud's serious illness & hospitalization. BUD & MARGE BOWSER. L

I wish to express my appreciation & heartfelt thanks to all my friends & co-workers for the retirement party. My wife & I shall always remember it. W. C. "BILL" TEETER. L

My family & I wish to take this opportunity of thanking my friends at Ventura for their kindness during my recent bereavement. PAUL T. BARBAKOW. L

For Sale or Trade

Pickup, 1940 Ford, many extra parts, \$950 or trade for cab over camper. 213-676-4632.

IS IT NEWS?
CALL EXT. 4273
HAWTHORNE

EDITOR'S NOTEBOOK

Northrop News staffers are strong advocates of motherhood, Americanism and apple pie; champions of all anti-pollution causes; lovers of all wild things; and firm believers in preservation of the species. So we are glad to pass along some unrelated announcements from here and there.

Electronics Division personnel out at Palos Verdes are elated to report the hatching of "at least 15" baby ducklings, the offspring of the wild Mallard ducks who make their home on the ponds there. Undoubtedly there are more ducklings about, but the Mallards, while not adverse to accepting handouts of food, tend to beat a hasty retreat when someone gets too close to the duckling brood.

Ventura Division personnel who visit or work at the remote Fort Conejo maintenance and test site report they are expecting a new brood of roadrunners "almost any day now." They also add that deer, snakes, even a weasel, appear at the facility from time to time. And on nearby range land sheep, including a new flock of spring lambs, graze placidly.

Aircraft Division personnel in Pricing and Major Negotiations are the proud "foster parents" of five little sparrows. A mother bird picked a window ledge five floors up to build a nest and hatch her brood. Three of the little ones emerged from their shells during a recent rainstorm. And Organization and Management Development personnel in another building report a pending "blessed event" involving a nest similarly located with five eggs incubating.

Not to be outdone, Electro-Mechanical Division personnel at Anaheim are dropping hints of a big event, although they are being mighty secretive about it all. The secrecy is to avoid "sight-seers" from interfering with the nest-setting chores of a small humming bird. There are also rumors that a repair job is being postponed until the hatching is complete, because the nest occupies a spot requiring work.

NORTHROP NEWS

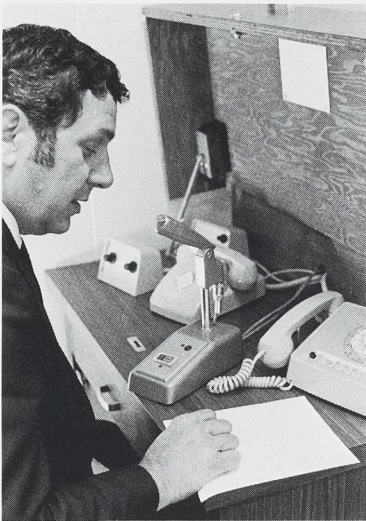
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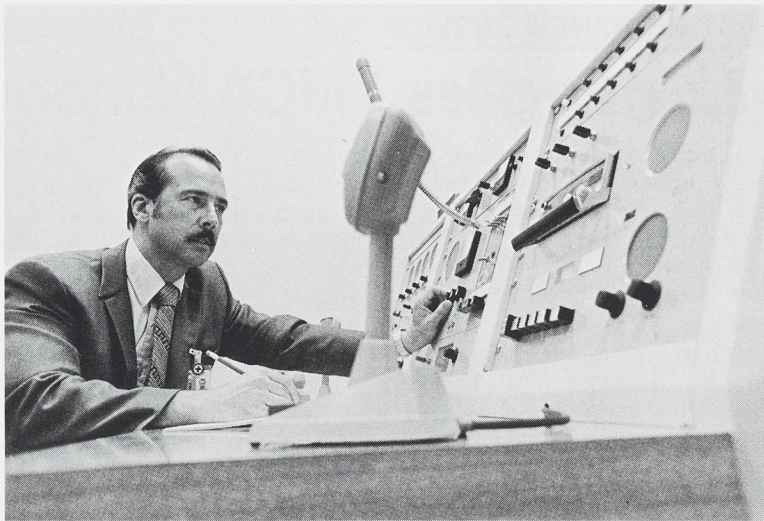
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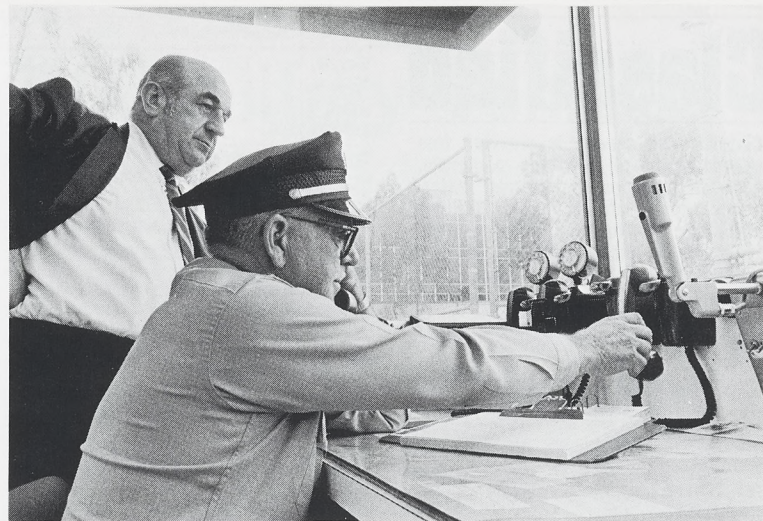
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ADDRESSING PERSONNEL
Mr. Gasich uses PA system in ECC.



CHECKING COMMUNICATIONS
Chuck Simmers checks console in Emergency Control Center.



HERE'S HOW '232' WORKS
Guard Clarence Meeker and John Steman show "hotline" phone sequence.

SECOND WORKSHOP SERIES SET TO AID UNEMPLOYED ENGINEERS

The second three-meeting session of the Ventura County Workshop for Professional Employment will take place June 10, 17 and 24 in Camarillo.

Several Ventura Division personnel are serving as counselors and coordinators for the workshops which are sponsored by the

local chapters of the AIAA and the IEEE.

Reservations for the three-hour sessions at Monte Vista Intermediate School, corner Lantana and Ponderosa Road, must be made by calling (805) 482-7215. There is no fee.



WITH PLASTIC F-5 FUEL TANK
Danny Beltran points out details to students from his class.

PLASTICS STUDENTS TOUR FACILITY

Fifteen members of an adult plastics lamination class recently were given a firsthand look at the industrial details of the field with a visit to the Ventura Division.

Danny Beltran, who teaches the class on Monday and Wednesday evenings at Oxnard High School, conducted the two-

hour tour which featured plastics work in the Boeing 747 and T-38/F-5 areas.

Mr. Beltran, a plastics laminator in 747 who has also worked on the T-38 and F-5 plastics, has conducted similar classes at Buena High School in Ventura, too.

Backing Cal Lutheran



RECEIVING SUPPORT in the form of a grant check from the Ventura Division to his institution is Dr. Raymond Olson, center, president of California Lutheran College. Presenting the check were Northrop's Frank Tipton, left, chairman of the school's Community Affairs Council, and Warren Sparks, a member of the CLC Business and Industrial Steering Committee. The Thousand Oaks school is the only four-year college in Ventura County.

Dial 232 for Fast Action in Emergency

Charley Andrews heard a raspy yell behind him. He turned quickly and saw a co-worker fall unconscious to the floor.

Without hesitation he rapidly moved to the phone eight feet away and dialed 232.

"This is Charley Andrews out in Electrical Fabrication in the Manufacturing Building. My buddy Ray just fainted. Send a rescue unit right away."

Three people were listening to Charley (his name is fictitious)

and they responded immediately:

Nurse Elinor Eckols dashed to the scene within one minute. County firemen were there with a resuscitator in seconds over two minutes. The Security and Plant Protection office was instantly aware of the situation.

While this little story is not true, it is typical of the fast response which does happen at the Ventura Division.

The key to Charley's success in bringing aid was emergency

extension 232. The number reaches the nurse, the guard at the main gate and the Security office all at once.

In the guard office the guard on duty reaches to an emergency telephone hotline connecting Ventura with the local Fire Department dispatcher for fire, ambulance, or rescue service. "They can be here in two minutes," explained John Steman, Plant Protection officer.

The guard uses the hotline for emergencies which he can spot from an electronic monitoring device, too. The device monitors 30 points within the plant for fire, heat, cold storage, perimeter doors and electrical circuitry.

But fast response is only half the story. The other half lies in the safety consciousness of all personnel, Mr. Steman stressed.

"If you see a fire, accident or similar situation occur, dial 232 immediately," he said.

In the event of a fire, for example, Security can muster the Volunteer Fire and Disaster Brigade to fight a containment action until the regular firemen arrive.

"Everyone is becoming more safety conscious as shown by the fact that the fire department is being called out here less and less," Mr. Steman said.

EMERGENCY—Many Are Involved

(Continued from page 1)

ected by intercom phones.

"In the operations room is where the decisions would be formulated and action initiated," explained Charles Simmers, chief security officer.

The division general manager and Mr. Simmers would work closely in determining proper response. They would rely on such organizations as Facilities, Medical, Plant Protection, Communications, Transportation, Industrial Relations and Public Relations. All have specific emergency functions.

A typical example would be Facilities and Property, managed by Clark DeSpain. This group provides utilities control, damage assessment, emergency repairs, and the supply of heavy equipment where needed.

Mr. DeSpain would also work closely with Mr. Simmers and the general manager because of his familiarity with the physical layout of the complex.

"It's all detailed in The Plan," Mr. Simmers said. Other elements of The Plan include outlines of action for various types of emergencies and functional outlines for organizations.

SOFTBALL SLATE

The Ventura Division softball team will play its second game of the season Thursday evening, June 10, when they take on the State Farm Insurance nine at 6:30 p.m. on the Newbury Park High School Field.

The Ventura team took a 1-1 practice game record into the opening of league play last week.

Other games on the schedule include Thursday, June 17, versus Dave East Richfield, June 24, versus Melco-Lobo's, both at Thousand Oaks High School, and July 1, versus Akrey's Tavern at Newbury Park High again.

Last year's second place Northrop team is expected to be a darkhorse this year. "We may not finish on top but we won't finish on the bottom," predicted manager Claude Vincelette.

Congressman Visit



REP. JAMES CORMAN, D-Van Nuys, recently inspected Ventura Division facilities and met with management. John Evans, vice president of Production Operations, right, is showing the Congressman a Boeing 747 part.

NORTHROP NEWS

VENTURA DIVISION EDITION

Published biweekly by Northrop Corporation, Los Angeles, California

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June 23, 1971

Bond Drive Net Gain to 85.8 Per Cent

Ventura Division personnel increased their level of participation in the U.S. Savings Bonds program to 85.8 per cent in the recent campaign.

Division campaign chairman Frank Tipton reported that the figure was up from 80 per cent when the two-week campaign began in May.

"This is a very respectable percentage of participation," Mr. Tipton said. He noted that Ventura's final figure was slightly above the overall Northrop average of participation.

He expressed his gratitude to special area boosters for their support.

Personnel may increase their level of participation or enter the payroll savings deduction program at any time during the year, Mr. Tipton added. He urges personnel to take advantage of the program.

The new bonus interest rate now available on Series E U.S. Savings Bonds make them a better investment than ever before, Mr. Tipton added.

IN MATERIEL, Q.A.

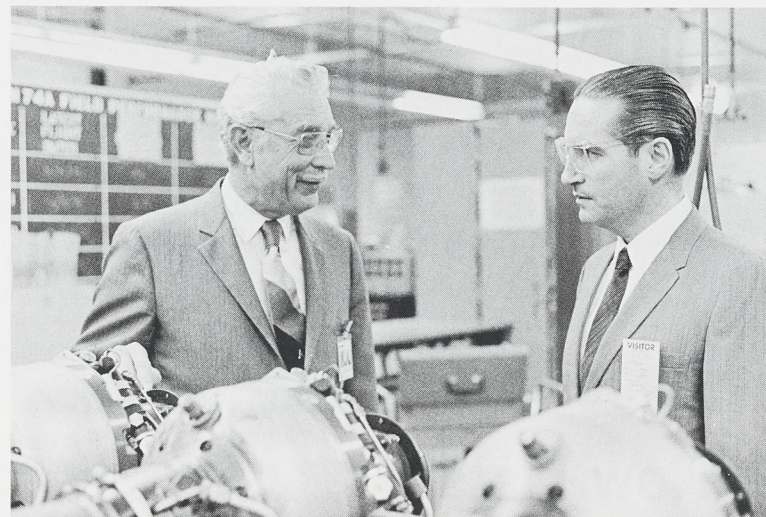
Ward, Parker Receive Key Promotions

Robert D. Ward and Harry D. Parker Jr. have been promoted to higher positions of responsibility recently at the Ventura Division.

Mr. Ward was chosen Manager of Materiel, reporting to John Evans, vice president of Production Operations, and Mr. Parker is the manager of Quality Assurance, reporting to Welko Gasich, Division general manager.

Mr. Ward joined Northrop in May, 1969, as chief of Material Control, Warehousing and Traffic.

A graduate of the University of Utah with a doctor's degree in Law and admitted member of the Utah State Bar, Mr. Ward says



CHILEAN VISITOR CHECKS KD ENGINE
Stiles Burke, left, shows Gonzalo Serrano the McCullough engine.

Chilean Visitor Inspects Ventura Target Operations

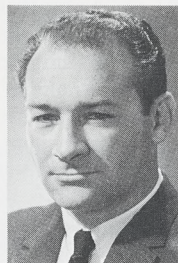
Meeting division officials and inspecting the Production facilities recently was Gonzalo Serrano, managing director of Nau-tiquipo, of Santiago, Chile.

Mr. Serrano's firm is the Ventura Division's sales representative in Chile for the KD2R5 Basic Training Targets.

Officially visiting Stiles Burke, director of International Marketing, Mr. Serrano also met with

Tom Dvorak, a Contracts administrator, and Gordon Reeder of the Target Systems office to discuss target operation and administration.

He also met with Welko E. Gasich, division general manager, George Grogan, vice president of Product Development, and Ben Collins, program manager for Aeronautical Systems before going on the tour.



Mr. Ward



Mr. Parker

Mr. Parker's career has been strictly airplanes and aerospace.

He was a teenager when he went to work at Douglas El Segundo in the late 1930's. After working for two other companies he joined Northrop in April, 1940.

Except for a stint on a Navy destroyer during the war, he has been with Northrop ever since. A member of management for the past 20 years, Mr. Parker joined the Ventura Division in 1967 as chief of the Design Support and Materials Engineering Group. He transferred to Quality Control in January 1969.

Formerly In Procurement

Mr. Ward steps up from his position as manager of Procurement and Material Planning. He succeeds Les Albright who is on an extended leave of absence. Mr. Parker took over for George Johnson in May when Mr. Johnson was assigned to the Aircraft Division as manager of Military Aircraft and Prototype Quality Control.

Sherman Maple now holds Mr. Ward's former post and Bob Parsons filled the job created when Mr. Parker was promoted.

In Memoriam

Fellow employees at the Ventura Division express their deepest sympathy to the family of **Harry T. Wirth**, project estimator, who died June 9. Mr. Wirth started working for Northrop Nov. 5, 1962.

30, 25 AND 20

Three Get Service Pins Representing 75 Years

Three Ventura Division personnel had a combined total of 75 years with the company as they marked anniversary dates and received Northrop service pins.

Jean DePue, a Quality Control man assigned to the NAMFI Program on Crete, received his 30-year pin from Division General Manager Welko Gasich.

Ed Burd, Program Manager for Rocket Target Systems and the Basic Training Target, receives a 25-year pin in June and Opal Stafford, a 747 structural assembler, marked 20 years with the company.

Mr. DePue joined Northrop at the Aircraft Division June 18, 1941. A man of many skills, when he transferred to the Ventura Division in 1956 he was experienced in Quality Control, Field Test, Manufacturing and Administration.

Chief Inspector

At Ventura he was chief inspector for all Inspection and Quality Assurance activities until 1961 when he entered the Apollo Program. His latest assignment, before going to Crete, was in the Direct Budgets Group.

Mr. Burd was a structural designer at the Aircraft Division back in 1946. He transferred to then-Radioplane in 1956 but returned to the Aircraft Division nine years later as a member of the Senior Technical Staff to the Manager of the Research and Development Department.

He came back to the Ventura Division in 1967 as program manager on Rocket Target Systems. His responsibilities have been increased in his present post. Mr. Burd, incidentally, is married to the sister of Ventura's Dutch Youngers.

Miss Stafford has been building Northrop products at the Ven-

tura Division (and Radioplane) for two decades. She has worked on virtually every target in that time and has been assigned to 747 sub-assembly for the past two years.

Three Venturans observed 15-



Mr. Burd



Miss Stafford

year anniversaries this month. They are John Wolcott, Quality Assurance; Marion Leppert, secretary to the Mark 30 Project Office; and Ted Randolph, Management Information Systems.

The five-year pin recipient for June is Bill Glass, of Vendor Control, Metrology and Test Inspection.

JULY 4 HOLIDAY WILL OFFER A BRIEF VACATION

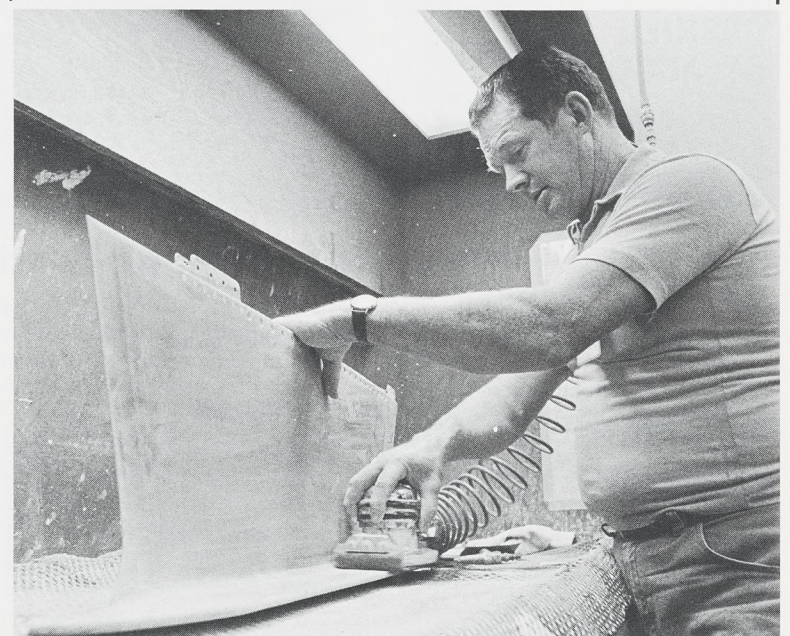
Ventura personnel will join other Northrop employees in observing Independence Day, July 4, with a paid holiday on Monday, July 5.

The three-day weekend is the second in as many months. The first occurred with Memorial Day, May 31.

The third three-day holiday of the year is scheduled for Labor Day in September. That is also a one-day vacation, Monday, Sept. 6.

Between Labor Day and the year-end holiday another paid vacation day is Thanksgiving. That national holiday falls in November.

On The Job . . .



CHARLEY ATKINS has been working in the Paint Shop at the Ventura Division for 13 years. Primarily a sand blast operator, Mr. Atkins was filling-in for a vacationing co-worker when he was photographed sanding a T-38 fin tip.

VENTURA-LED NORTHROP PROPOSAL TEAM INCLUDES TRW, CUBIC CORP.

Northrop, led by its Ventura Division, is teaming with TRW and Cubic Corp. to respond to an Air Force request for proposal for a study on Remotely Piloted Vehicles (RPVs).

The study would define parameters for three mission areas: air-to-air combat, air-to-ground weapons delivery, and reconnaissance.

Essentially the Air Force is expecting in the near future to add the RPVs to its inventory. It is asking industry in the study to define the roles, cost and description of the RPVs.

It is anticipated that two winners will be selected from the nearly 20 contractors bidding for the study.

Northrop will apply its full

fighter aircraft, unmanned vehicles, electronics, navigation, electro-optics, ECM and communications capability to the study.

TRW, the largest producer of unmanned satellites in the country and Cubic, a San Diego firm, will bring to bear expertise in command and control, data link, multiple vehicle control, ground station, and distance measuring equipment.

John Flores, manager of Technical Operations at the Ventura Division, assisted by Charles Bernstein, Technical, from the Corporate office, is heading the proposal team.

Jack Duganne, Customer Requirements, and Augie Quenon, Implementation, are filling key roles in the proposal team.



WILLIAMS AFB MEMBERS OF F-5 1,000 HOUR CLUB

From left, Maj. W. H. Gillette, Lt. Col. R. P. Whitener, Lt. Col. J. P. Potter, Maj. G. L. Getchell, Maj. L. G. Rever, Capt. G. F. Dunne.

Exclusive F-5 1,000 Hour Club Now Lists Sixty-Three Members from Eight Nations

Sixty-two officers who wear the uniforms of the armed forces of eight allied nations are now eligible for membership in an exclusive organization—the Northrop F-5 1,000 Hour Club.

The officers are pilots. Each has logged a minimum of 1,000 hours at the controls of a Northrop F-5 tactical fighter.

Membership in the elite 1,000 hour group entitles the individual to a special F-5 desk model with suitable plaque noting his status, a 1,000 hour pin and a certificate.

Today, 63 men have logged more than 1,000 hours flying F-5s. Rounding out the total is Hank Chouteau, Northrop's chief test pilot. In the weeks and months ahead, additional members will earn the right to membership in the group as they pass the 1,000-hour mark.

The Air Force of South Vietnam has the largest number of pilots eligible for club membership, 15 in all.

They are Majors Nguyen Quoc Hung and Dam-Tsuong-Vu and Captains Nguyen Dam Thuyen, Nguyen Van Tuong, Nguyen Thanh Tri, Le, Hai, Nguyen-Thanh Dung, Nguyen Quang Vinh, Nguyen Van Con, Nguyen Xuan Dung, Mac - Duc - Ninh, Trinh-Buu-Quang, Vo-Anh-Tai, Trinh Huu Tri and Trinh-Thanh-Chau.

The Imperial Iranian Air Force is close behind with 13 eligible members. They are Colonel M. Sayedjavadi, Majors A.

Mohagheghi, Abolfazl Mostafavi, Vahid Kimiagar and Parvis Gohary. Also Captains M. Abolmoulouk, N. Zolali, K. Ayatollahi, H. Ghezelayagh, M. Mirzaian, H. Hadjmonir, Parvis Mandegar-ian and Rahnat Mirzai.

The United States Air Force has 12 officers who have logged 1,000 hours or more in the F-5. They are Lt. Cols. John P. Potter and R. P. Whitener, Majors John J. Curatelli, William H. Gillette, Donald F. Crane, Richard L. Richens, George L. Getchell, Billy B. Gilbert, D. C. Lea and L. G. Rever. Also Capt. Gilbert F. Dunne and Lt. Miles Withrow.

Greek Pilots

Greece has nine pilots with more than 1,000 hours of flying time in the F-5. Lt. Col. Demetrius Vassilakakis, Maj. George Cacaris and Captains Evagelos

Fitis, Michael Ziotas, Evagelos Papastamatiou, Constatine Got-sis, George Papaianou, Clear-chos Ifantis and Stavros Papadimitriou are the honorees.

South Korea

The Republic of South Korea follows with six eligible members. They are Lt. Col. Kim Hae Jun, Majors Park Chang Soo, Kim, Sun Ho, Cho, Chae Rae, Choi, Moon Kyu and Kim, Jong Tae.

Five officers from the Philippines are also eligible for membership. They are Majors Rodolfo E. Franco, Efen O. Peleo, Tereso J. Isleta, Ruben M. Pabustan and Samson M. Mahimer.

Captain Ragnar K. Ostby of the Royal Norwegian Air Force and Capt. Haydar Canberci of the Turkish Air Force round out the current eligible members.



SOUTH VIETNAM'S REPRESENTATIVES

From left, Maj. N. Q. Hung, Maj. Dam-Thuong-Vu, Capt. Nguyen Thanh Dung, Capt. Trinh-Buu-Quang, Capt. N. D. Thuyen, Capt. Vo-Anh-Tai, Capt. Trinh-Thanh-Chau, Capt. T. H. Tri.

More Than 8,200 Employees Now Buy U.S. Savings Bonds Via Payroll Plan

The annual Northrop Savings Bonds campaign has been highly successful, according to Marvin E. Beyrodt, Corporate coordinator for the drive.

"At the beginning of the campaign average participation for our California-based divisions was 80 per cent," Mr. Beyrodt said. "At the conclusion of the campaign on June 1 we had 85.3 per cent participation in the Payroll Savings Plan."

Mr. Beyrodt attributed the excellent increase to two factors. "One," he said, "is the new

bonus interest rate on Series E Savings Bonds which make them a better investment than ever. The other factor is the hard work of our division bond chairmen and their many representatives in bringing to their people's attention the benefits of the Payroll Savings program and helping them make out their allotment cards."

Divisions and organizations involved have a total employee count of 9,655 and at the conclusion of the campaign 8,236 were participating in the Payroll Savings Plan.

Community Service Study Made for City of Anaheim

An Electro-Mechanical Division plan, developed as a community service, to provide the city of Anaheim with a new city hall was presented to the Anaheim City Council June 2.

The plan was developed by Northrop at the request of the Anaheim Chamber of Commerce. Merrill E. Skilling, chief plant engineer, directed the development of the plan with the assistance of Frank Merrell, Joe Saline and Ed Hofmayer.

Currently, Anaheim has civic offices scattered over nine locations, including a small City Hall erected in 1923. Northrop's plan indicates that sufficient money would be saved over a period of time to pay for construction of a new City Hall.

The plan was enthusiastically endorsed by the Chamber and Mr. Skilling was requested to represent it in presenting the plan

to the City Council.

Mr. Skilling told the council that the low building cost was determined by planning a functional building along the lines of Northrop's building Y-3.

The study showed that during initial occupancy the city would realize a savings of \$25,000 a year in increased efficiency through occupying a new city hall. This savings would eventually reach \$50,000 a month as the city approached its ultimate growth. At the same time the study indicated that a bond issue floated to pay construction costs would only require a \$24,000 monthly payment, resulting in an actual cash saving by building the new city hall.

The council expressed great interest in the Northrop civic service plan. It appointed Mr. Skilling and City Manager Keith Murdock to study the plan and make further recommendations.

Gene Jessick Named to Two Civic Committees

Gene Jessick, manager, Security and Plant Protection, Electro-Mechanical, has been appointed to membership in two important civic committees.

One is co-chairmanship of the Anaheim Chamber of Commerce Crime Prevention Committee. The other is membership on the Citizen's Vandalism Committee.

In the first position, Mr. Jessick will work with the Crime Prevention Committee on the Second Annual Business Protection Seminar. The seminar, set for October, will be at the Anaheim Convention Center. Mr. Jessick was one of the principal speakers at the first seminar. The seminars provide the business and industrial community with the latest protection information.

In addition, the committee will work to alert all citizens of Anaheim to the things they can personally do to protect themselves from criminals. This will include a once-a-month direct mailing to all homes in the city of Anaheim. This mailing will cover specific measures that homeowners, apartment dwellers, businessmen and private citizens can take to protect themselves and their property.

In his second civic committee assignment, Mr. Jessick was appointed to represent the Anaheim Chamber of Commerce on the Citizen's Vandalism Committee.

This committee, which is comprised of educators, businessmen, professional people and aroused citizens, will be working with the police and other civic groups to reduce vandalism in city schools.

Fifty Cities Slated for 747 Service

Fifty cities around the world will be served by Boeing 747 superjets during the summer months of 1971, according to recently published airline schedules.

The 747 flights will include 42 daily round trips across the North Atlantic; 65 daily long-range round trips within the continental United States; and 25 daily round trips within the Pacific area.

Total intercity flights per week will be nearly 2,200, with available seats totaling more than 750,000. This is approximately three times more 747 flights and seats available than during last summer.

At New York's Kennedy International Airport alone, daily 747 arrivals and departures will total 114. Traffic congestion? To provide the same amount of transportation, it would require at least two and one-half times as many arrivals and departures with other jetliners.

As of May 6, the latest date for which fleetwide 747 statistics are available, the 123 superjets delivered to 24 airlines had logged 247,660 flight hours and had completed 49,710 revenue flights.

TOURS SET

Northrop Retirement Club has arranged two special tours for the entertainment of its members. Contact the Aircraft Division Personnel Activities office for details and reservations.

On July 10 the group will take a harbor cruise which will include a close look at the Queen Mary, a visit to Ports O Call and lunch at Alberto's Restaurant. The price is \$3 and the departure time is 10 a.m. from NRC Clubhouse, Hawthorne.

Also on the agenda is a special "Mystery Trip" to be staged Sept. 19. The price is \$10.

CASHIER LAUDED BY ACCOUNTANTS

Dan Cashier has received a certificate of appreciation from the San Fernando Valley Chapter of the National Assn. of Accountants for a technical manuscript he submitted for nationwide NAA competition.

The chapter placed sixth out of several hundred in the competition and Mr. Cashier's 22-page paper, "Top Management's Role in the Development of Management Information Systems," was one of six submitted by the chapter.

Now president of the NAA's Conejo Valley Chapter, Mr. Cashier was a member (and past-president) of the San Fernando Valley Chapter when the paper was researched and written.

He is Corporate director of Business Management Services and Auditing.

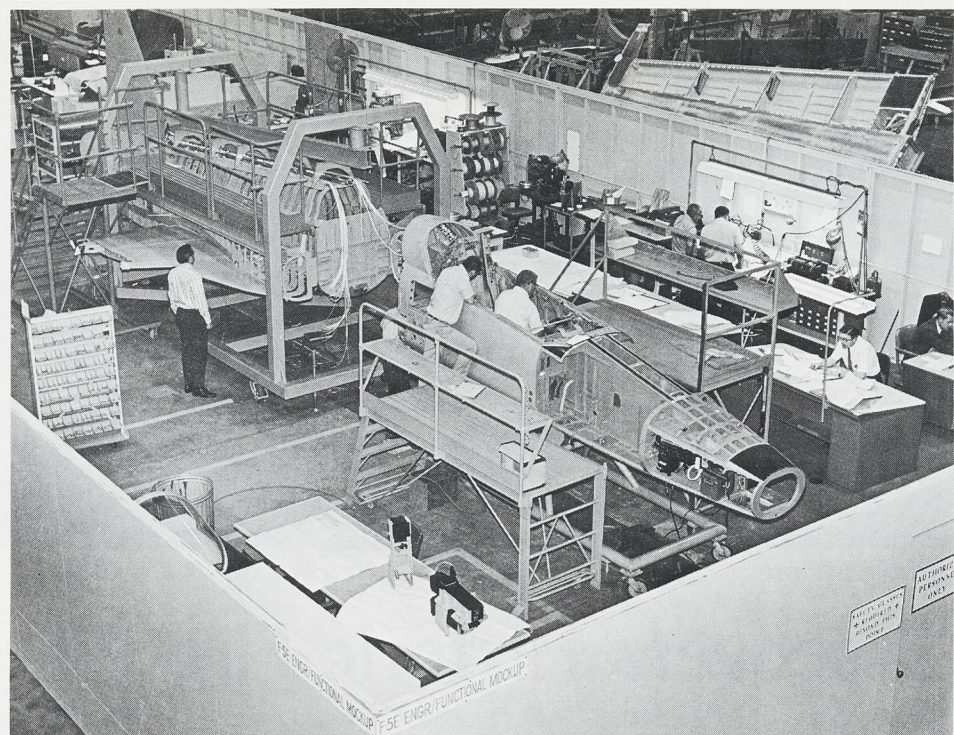
ENVIRONMENTAL SYSTEMS SHOWN

The Electro-Mechanical Division displayed its capabilities in the environmental systems field at a recent trade show sponsored by the American Association of Airport Executives, Daytona Beach, Florida.

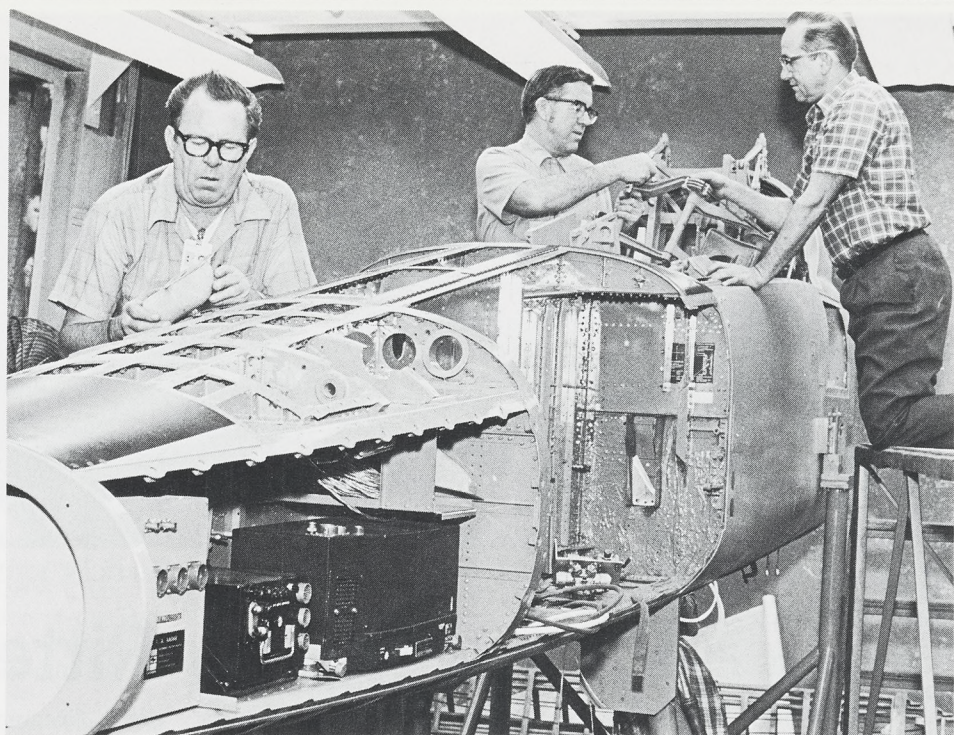
The division's Environmental Systems was represented by Roger Barquist and Gordon Bricken.

The display included samples of the division's work in environmental impact studies, the ECOLOG-1 noise monitoring system, noise contour studies, and other products and activities of the Environmental Systems group.

In addition, the display covered the airport support work of the Airport Development Corp., a Northrop subsidiary.



AN ISLAND IN PLANT ONE ASSEMBLY AREA
F-5E Engineering/Functional Mock-up development in progress.



HANDLING SOME OF THE MANY MOCK-UP TASKS
From left, John Williams, Jean Benson (Palmdale) and Dan Kerzenski.

F-5E FUNCTIONAL MOCK-UP

Aiding in Controls of Costs, Schedules, Quality



LEADERS
M. M. Kennedy, left, is Engineering mock-up coordinator, S. M. "Skip" Baldwin heads Advance Production crew.

Development of the Northrop F-5E is proceeding in a business environment calling for the tightest possible controls of costs, schedules and quality.

Among the many approaches being used to attain contractual goals is one which places heavy emphasis upon the F-5E Engineering/Functional Mock-up and Manufacturing Aid, commonly called the Functional Mock-up (FMU).

The FMU develops vital data for use by Engineering and Manufacturing. It is a form of the "try before you buy" concept relative to form and fit, operation of moving parts and functional testing of electrical and electronic systems, including a review of cockpit lighting.

The FMU is used as a master to determine wire harness routing, bend data and routing of plumbing lines. It also is used to establish the routing and length of control cables and the location and fit of heat, ventilation and other ducting in the F-5E.

Optimum space utilization is a

must in fighter aircraft design. In the FMU the aircraft designer has what amounts to a full-scale, three dimensional layout, according to M. M. Kennedy, Engineering mock-up coordinator.

By building the FMU, to pre-production drawings, concurrently with the F-5E design effort, components, wiring, plumbing, and related hardware are being fabricated and installed in advance of the release of production drawings. In this way, it is anticipated that there will be a substantial reduction of corrective engineering during the early production period.

Accuracy Is A Must

Because the F-5E center fuselage section is being reconfigured, an accurate mock-up is essential. The longer, wider structure with revised fuel configuration and enlarged engine bays triggers a multitude of detail changes.

This requires close coordination between all elements of Engineering, with the focal point being the System Development

and Integration organization under the direction of F. B. Sarsar. This group works closely with Advance Production Operations, headed by R. H. Thornhill, who are responsible for building and maintaining the FMU.

Mr. Thornhill singled out two specific areas in which the FMU provides advantages significantly affecting program costs, quality and schedule in manufacturing. One is isolating and resolving problems of fit and function before the production "pipe line" is full of parts. Another is in optimizing the location and positioning of equipment for ease of maintenance in the field.

An example of the latter led to the repositioning of the oxygen supply bottles to materially reduce replacement downtime in field maintenance. Product Support personnel played an active role in this change.

"This is just one example of future difficulties being short-stopped through the use of the mock-up," said S. M. "Skip" Baldwin who heads mock-up operations. "And there are many others."

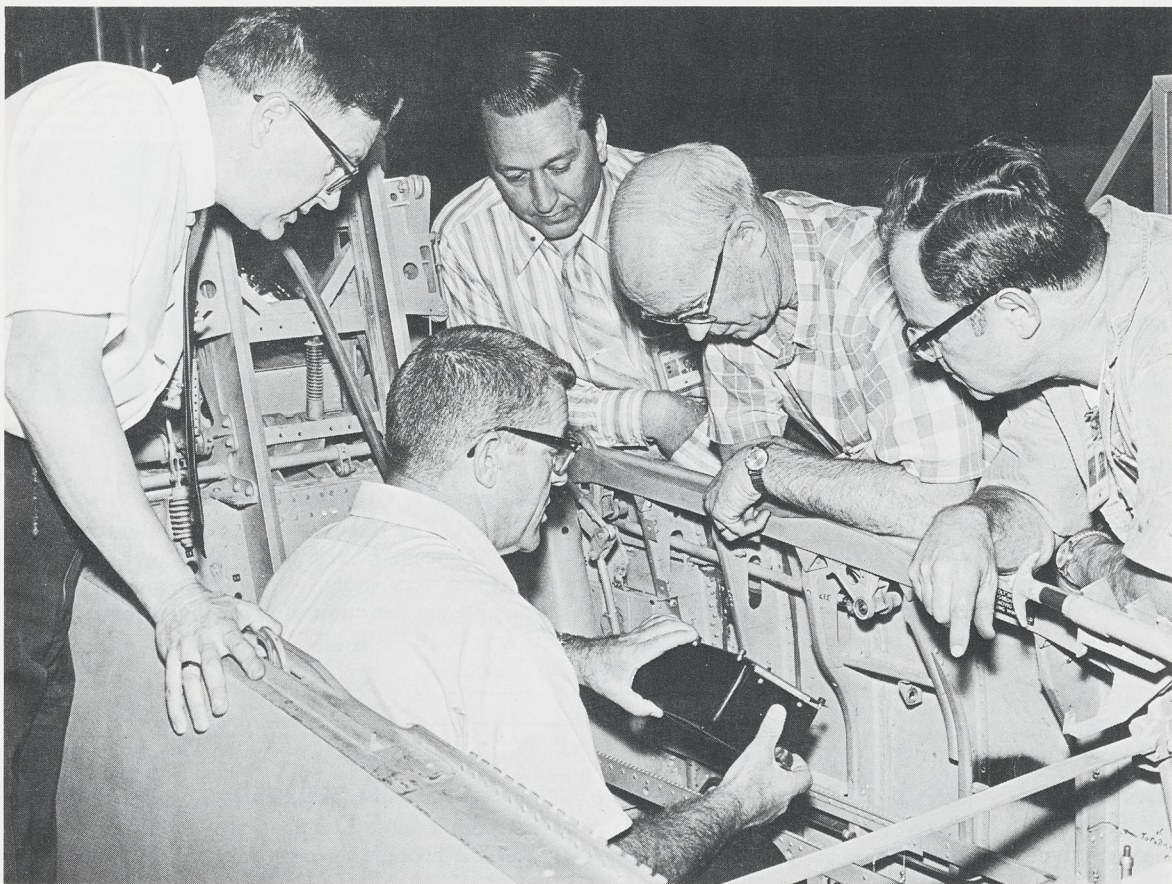
Manufacturing personnel from Hawthorne, Palmdale and Edwards AFB are now working on the FMU. These same people will perform installation tasks on initial F-5E Category I and II Flight Test Aircraft. Assembly and checkout of these aircraft will be more efficient as a result of the experience gained on the full-scale mock-up.

For Vendor Use, Too

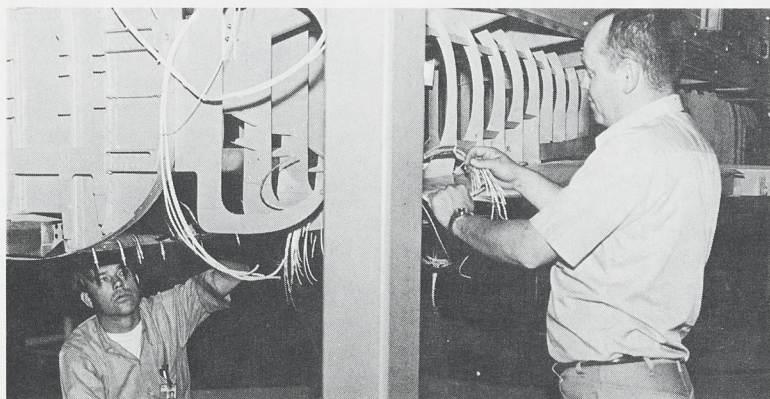
Vendor personnel, particularly those supplying long lead time equipment, have been to the Aircraft Division to check full-scale mock-ups of their products for fit, location and operation.

The FMU will serve the F-5E program beyond design completion and production of initial aircraft. It will be used to simulate and resolve aircraft systems installation problems that might arise during the flight test program and for checking out the incorporation of modifications necessary throughout the life of the F-5E contract.

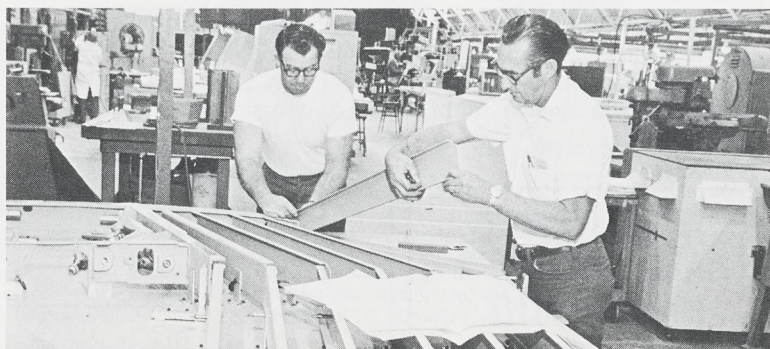
The F-5E FMU is located in the Plant One area convenient to Engineering and major Manufacturing elements.

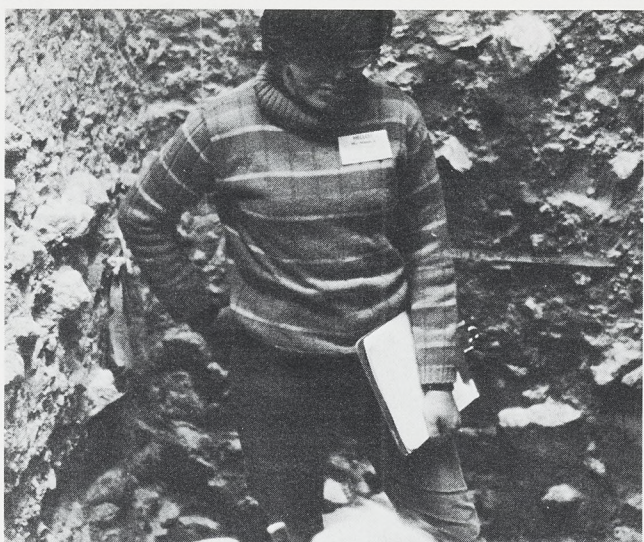


'CLOSE FIT' IS STANDARD TERMINOLOGY FOR MOCK-UP CREW
Engineers Bob Collins, in cockpit, Adolph Reidt, left, and Bob Jensen confer with Mechanics Larry McNulty and Jim Lauder, right.



HANDLING MORE OF THE MANY TASKS
Above, Denis Wible installs hydraulic plumbing as Chet DeLapp sorts electrical wiring. Below, Andy Dufraim, left, and Bill Martin work assembling prototype wing spars from engineering layouts.

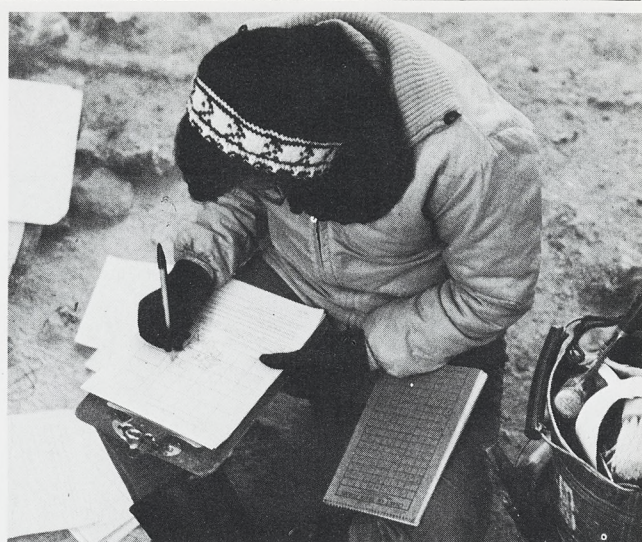




ROSEMARY RITTER READY FOR WORK



CAREFULLY EXCAVATING THE 'DIG'



PLOTING EXACT LOCATION OF STONES

Unusual Pipe Once Belonged To Gen. Rommel

A pipe that Field Marshal Erwin Rommel, the famed "Desert Fox" of World War II, presented to his father at a military Christmas party 57 years ago now has an honored position in the collection of Hans Metzger, Electro-Mechanical Division engineer.

The pipe was given to Mr. Metzger's father in 1917 when he was serving in the then Lieutenant Rommel's platoon on the Italian front. They were both members of the 6th Wuertemberg Infantry, Alpine Battalion, as ski troopers.

The pipe is a Bavarian type with a large bowl curving into a long cherry wood stem and terminating in a carved horn mouth bit. The ceramic bowl features a baked-in portrait in full color of



Hans Metzger

a soldier in uniform. On the back of the bowl are inset the words "5. Armee Weinhachten 1914." This can be translated as "Fifth Army, Christmas 1914."

Mr. Metzger's father brought the pipe to America when he immigrated here in 1923.

Mr. Metzger's father never smoked the pipe until the last few years before his death in 1960. As a result, it is still in excellent condition. The lettering is still intact and the portrait still retains its vivid colors. A metal, slotted cover that once covered the bowl is the only thing missing.

Mr. Metzger remembered the pipe from his childhood, and when in Ann Arbor recently for a family reunion, he rummaged through family heirlooms until he found it and brought it back with him to California.

It will remain a keepsake. He has no intention of smoking it himself, but will remain faithful to his own briar.

Rosemary Ritter Discovers Historic Fire Pit

Thirteen stones, buried for 50,000 years in the desert near Calico and found by the daughter of a Northrop employee, may cause archeologists to revise their estimates on how long man has inhabited California.

Present estimates claim that prehistoric man came here over a land bridge from Siberia only as recently as 10 thousand to 20 thousand years ago.

The rocks found by Rosemary Ritter indicated that this estimate may be wrong as much as 30,000 years. Miss Ritter, working with an archeological group headed by world famous Dr. L. S.B. Leakey, was working in the "dig" when she noticed a curiously shaped stone. After carefully uncovering it, she discovered that it was one of 13 arranged in a circle. Excited by the find she notified Miss Dee Simpson, supervisor of the expedition's field work.

Later evidence indicated that the stones had been arranged for a prehistoric fire pit.

The site of the archeological "dig" was discovered in 1948 by an amateur archeologist. Later Dr. Leakey persuaded the Na-

tional Geographic Society to finance excavations. The prize find so far is the fire stones dug up by Miss Ritter.

Miss Ritter, according to her father, H J. Ritter, Facilities, Aircraft Division, has been interested in rocks all her life. As a child she gathered them all over the country as she moved from base to base when her father was in the Air Force.

However, when she entered San Bernardino Junior College she intended to make art a career, but her interest in rocks caused her to add a course in geology.

Interest Expanded

Later she saw an ad requesting volunteers to work in the San Bernardino Museum. Here her interest in rocks and Indian artifacts got her an invitation to join the museum's archeological excavations near Lake Arrowhead. This brought her an invitation to join the Calico diggings.

Miss Ritter at work is described in the current issue of Westways Magazine. After describing her as a slim girl with long, light brown hair, the magazine quoted the field work super-

visor as saying, "She's the type of worker that Dr. Leakey likes: the kind who doesn't work fast, but steadily, and with patience."

Although archeologists refer to their excavations as "digs", in actuality it is more like scratching. Prehistoric artifacts are too precious to risk destroying with heavy digging. Miss Ritter's personal tool kit consists of nutmeat picks, dental tools, screwdrivers, camel's hair brushes, and a small mallet. With these she slowly and meticulously works away the dirt from around each rock and artifact.

Then before any stone is removed, each one is carefully plotted on a map to show its exact location. This is necessary because the level or strata in which the objects are found often indicate their age.

The fire circle stones found by Miss Ritter were about 23 feet under the ground surface. The original site had long ago been covered by a mud flow, probably originating at nearby Lake Manix, a prehistoric body of water now dried up.

In digging down through the strata layers, the archeologists

found chips left from making prehistoric weapons and bits of fossilized mammoth bones.

Miss Ritter found the fire stones in 1968. However, no announcement was made at the time, pending scientific examination to determine the age of the rocks and if, indeed, they were man-arranged and not the result of natural forces.

Samples of the rocks were sent to a specialist in Czechoslovakia who determined that the inner side of the rocks had been subjected to considerably more heat than the outside. This seems to confirm the original theory that they had surrounded a fire ring.

The geological strata in which they were found indicates their possible age at more than 50,000 years.

With this verification, announcement of the find was made in October 1970 at the Calico International Conference held at the San Bernardino Museum.

With this triumph behind them the excavators are now digging some more, seeking additional relics that may help solve the mysteries of man's past in America.

WE ASKED THEM—Where In The World Would You Like To Visit Again?



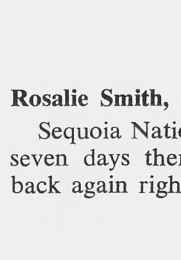
Wilbur Leeds, Maintenance Mechanic, Ventura:

Well, I've been all over the South Pacific, Canada and Mexico as well as the United States. And I'd have to say I'd like to go back to nearly every place I've been in the U.S. It doesn't matter where it is—I have a good time anywhere, especially in the U.S.



Margaret Novak, structural assembler, Ventura:

Binghamton, N. Y., where my sister lives. I like the lovely trees in October. Back east at that time of year it is just beautiful. The beauty of nature is the touch of God's hand.



Rosalie Smith, document analyst, Aircraft:

Sequoia National Park. Just last week we spent seven days there and it was lovely. I could go back again right now for another vacation.



Dorothy Moore, secretary, Electro-Mechanical:

I have the fondest memories of Hawaii. I doubt that it was the palm trees, Waikiki or the hula girls, but rather the company I was with. It was great fun.



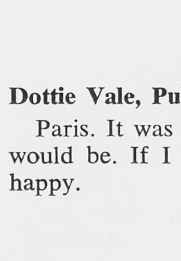
Bob Russell, Electrical Assembly, Electro-Mechanical:

I'd like to go back to New Zealand. I was there with the U. S. Navy in World War II and have fond memories of the trout streams, steak and eggs for breakfast, and the very friendly people.



Jack Strumpf, Graphics, Aircraft:

Hawaii. The last time I was there was when I was a serviceman returning from Korea. I didn't get to see very much. Now I'm planning to go back and see the cultural spots that I missed.



Dottie Vale, Publications typist, Electronics:

Paris. It was everything that I ever dreamed it would be. If I can go back there again, I'll die happy.



Don Hannum, Engineering specialist, Electronics:

Denmark, Sweden and Norway. They are beautiful countries, and the people there are very interesting.



IS IT NEWS?
CALL EXT. 4273
HAWTHORNE

Classified

Classified ad service is provided free of charge to all Northrop personnel. Ads for agencies, commercial enterprises and private businesses are not accepted. The Northrop News reserves the right to edit or omit ads. Ads are limited to two items per person per issue; each category to be submitted on separate form. Deadline is noon Wednesday, one week before publication.

Automobiles For Sale

- International Scout, 1961, 4-wheel dr., posa-traction axle, freewheeling hubs, aux. gas tank, \$995. 213-927-0678. A
- Volvo, 1958, rebilt. trans., new tires & radiator, \$125. 213-676-5101. A
- Plymouth GTX, 1967 440, auto., hood scoop, \$1,295. 213-675-4764. A
- Pickup, Chev., 1966, 1/2-ton w/1/2 shell camper new bks. & h.d. shocks, 2 extra side tanks, \$1,000. 213-324-1347. A
- Motor Home, 18' Lazy Daze, on 1969 1-ton Ford, self-contained, 6' gas & elec. reffrig., shower, sleeps 4, \$6,800. 213-677-9092. A
- Cougar XR-7, 1969, air, stereo-AM-FM, p/windows, brakes, 29,000 mi., \$2,400. 213-673-1496. A
- Datsun 2000, late 1969, good tires, \$1,850. 213-322-3420. A
- Corvair, 1965 Corsa convt., 140 h.p., r/h, 4-spd. stick shift, \$325. 213-378-1658. A
- Datsun, 1968, 510 4-dr. sedan, r/h, extras, new tires & batt., \$995. 714-545-8330. A
- Station Wagon, 1962 Chevrolet Nova, \$400. 213-676-6390. A
- Jaguar, 1963 XKE h/top, new d/brakes, \$1,895. 213-370-8106. A
- Rambler, 1964 Classic 770, 3-spd. on floor, new tires & brakes, eng. recently o/hauled, stereo tape deck, \$450. 213-291-5280. A
- Mercedes Benz 250, 1970, auto., p/s, all access., \$5,500; Mustang, 1967, V-8, new clutch, whls., radial tires, p/s, d/brakes, \$1,300. 213-394-6315. A
- Chevrolet, 1963, stick 6, Biscayne, 4-dr., \$350. 213-941-1865. A
- Chevelle, 1965 Malibu SS, 6-cyl., p/s, auto., \$695. 213-865-5133. A
- Ford, 1964 Fairlane 500, 4-dr. sedan, auto. trans., \$500. 213-424-7351. A
- Chevrolet, 1966 Impala Super Sport, 396 cu. in., p/s, p/b, tape deck, 57,000 mi., \$1,095. 213-323-6802. A
- Cutlass, 1966, 38,000 mi., \$750; Dodge Challenger, 1970, 23,000 mi., \$2,345; Mercury Station Wagon, 1969, 41,000 mi., \$2595, all min bids. Credit Union, ext. 1117. A
- Volkswagen, 1966, squareback, \$1,395. 213-378-2156. A
- Mustang, 1970 V-8, 302 h.p., 15,000 miles, standard trans., d/brakes, \$2,200. 213-671-2889. A
- Mustang, 1965, red, 10,000 mi. on rebuilt V-8 eng. and trans., \$900. 213-321-6237. A
- Austin Healy Sprite, 1966, needs work, \$350. 213-378-2753. A
- Van, 1962 Ford Econoline with rebilt. eng., \$500. 213-370-3821. A
- Volkswagen Sedan, 1964, one owner, new tires, radio, \$725. 213-377-5075. A
- Pontiac, 1969 GTO, p/s, p/b, air, AM/FM/tape deck, will accept older van or pickup as part payment, \$2,400. 213-327-2802. A
- Station Wagon, 1960 Oldsmobile, new tires, trans., pwr/brakes and steering, one owner, \$325. 213-377-1231. A
- Oldsmobile 98, 1965, air, all power, \$1,000. 213-324-6517. A
- Corvette, 1962, hardtop, automatic, \$950. 213-320-3785. A

Household Items For Sale

- Refrigerator, \$50; Dishwasher, mobile, \$30; other items. 213-378-7479. B
- Crib, mattress, \$15. 213-377-7156. B
- Dining Room Set, walnut, oval table, 4 chairs, buffet, lge. mirror, \$125; carpet padding, 50 yds., ripple foam, \$35. 213-532-9651. B
- Bedroom Set, dble. bed, h/board, 2 night stands, 2 dressers, mattress & box springs, \$100. 213-675-2514. B
- Washer, & dryer, yellow, \$175. 213-379-6133. B
- Living Room Chairs, 2, newly uphol., brownish gold, \$15 ea.; knick-knack shelf, Early American, 5'x3', \$15. 213-426-4060. B
- Fry Pan, Sunbeam elec., square w/dome lid, \$5. 213-675-0788. B
- Box Springs & mattress, extra long, \$25; Desk, 150 yr. old antique, \$100. 213-370-7749. B
- High Chair, crib, stroller, other misc. baby items, \$40 or sell sep. 213-324-2992. B
- English Baby Buggy, sun canopy, mattress, bedding, \$35. 213-645-7972. B
- Range, O'Keefe & Merritt, gas, 4-burner, elev. broiler, \$100; Servel Refrigerator, and many other household items. 213-321-0020. B

Miscellaneous For Sale

- Camera, Mamiya twin lens reflex, C220, \$150. 213-377-5936. C
- Typewriter, elec., IBM, office size, \$150. 213-375-4047. C
- Apt Bldg., 10-unit, Culver City area, \$16,710 income yr., 10% dn., \$120,000. 213-836-3172. C
- Boat, 14'9", 35 h.p. Evinrude eng., remote steering & controls, incl. trailer, bait tank, life jackets, \$400. 213-542-5652. C

Miscellaneous For Sale

- Motorcycle, Yamaha 80, dirt, 5-ported, milled head, \$180. 213-397-3504. C
- Pups, AKC Beagle, 7 wks. old, \$50. 213-534-4930. C
- Mobile Home, 10x57, 2-bdrm., 18' expando, cpt., dps., 26' enc. patio, 4x6 storage, skirting, cooler, adult park, \$5,500. 213-320-4749. C
- Boat, 12', glass-wood, 35 h.p. Evinrude, elec. start, lge. wheel trailer, \$295. 213-633-2990. C
- Differential, 3.70 ratio, fits '55-'64 Chev., \$20. 213-676-5270. C
- Luggage, Samsonite, 5-pc. set, matched, \$60. 213-371-4919. C
- Wheels, 4 15" x 7" Magnum 500 for Ford or Dodge, \$35; cartop carrier, for surfboards \$5. 213-679-5371. C
- Pups, Laborador Retriever, black, AKC, sire champ., males & females, avail. July 25, \$150 & up. 213-377-6658. C
- Pups, Dachshund, 7-wks. old, AKC reg., miniature, \$100. 213-377-2637. C
- Motorcycles, 1970 Yamaha 360 Enduro, 1,800 mi., all street equipment, many extras, \$750. 213-379-9409. C
- Lots, lake view, Isabella, water, power, w/ground phones, \$500 dn., \$45 mo., \$2,950. 213-635-3127. C
- Camping Tent, lge., \$100. 213-675-8891. C
- Shotgun, 410 3" Charles Daly, over & under, custom engraved, incl. Boyt case, \$260. 213-329-2363. C
- TV, 19" b&w portable, Packard Bell w/stand, Blonder Tongue UHF converter, access., \$47.50; lather dispenser, Schick hot shaving type, \$5. 213-376-4831. C
- Travel Trailer, 1964 Ideal, 16' self contained, gas stove & reffrig., sleeps 4, twin beds, elec. brakes, Arctic Circle cooler, other extras, \$975. 213-633-1652. C
- Travel Trailer, 1970 19' Golden Falcon, completely self-contained, many extras, used once, \$2,600. 714-827-4393. C
- Rifle, Rem. mod. 722, 222 cal. w/scope, extra ammo & brass, \$100. 714-828-7873. C
- Camper, Globe, 6'x8", 42" high, twin beds, ice box, used 3 times, \$375. 213-370-1963. C
- Roof Rack for van, hvy. duty, 6' long, \$45. 213-941-1865. C
- Flying Club Membership, Flyers, Inc., Hawthorne based, fly Cessna 172's for \$10.50 hr. wet, instructors avail., all aircraft IFR equipped, \$300. 213-542-3697. C
- Motor, 35 h.p. Evinrude Larr, tank, controls, J-Box, \$300. 213-373-4072. C
- Acreage, approx. 5 acres, rugged & wooded river-front, property Mother Lode country, \$1,000 acre. 213-371-3171, 213-377-1990. C
- Motorcycle, Honda 160, elec. starter, trail gear, windshield, 7,000 mi., \$265. 213-325-4580. C
- Slide Rule, Aristo multilog 970 w/manual & leather case, \$15. 213-675-0788. C
- Rollaway for portable TV, fits 18" or 20", \$10; Butane tank, 20 gal., suitable for camper, \$10. 213-328-0887. C
- Pony Exercise Machine, Niblack, chrome rollers, \$225. 213-378-5772. C
- House, Lomita, 5-yrs. old, 4-bdrm., 2 bath, many extras, seller will pay buyers costs, \$37,900. 213-325-3675. C
- Acreage, 2 1/2 acres fronting on new Adelanto pvt. airport, M-1, \$7500, \$75 dn., \$75 mo.; 5 acres, Adelanto City, water & elec., \$10,000, \$100 dn., \$100 mo. 213-378-1026. C
- Weimaraner Pup, 10 mos. old, papers, shots, champion sired, female, \$75. 213-377-5322. C
- Sailboat, Irwin 24' sloop, dacrons, roller reefing, 4 bunks, vinyl cushions, head, 20 gal. water tank, galley, anchor, line, chain, 6 h.p. Evinrude, sail cover, fiber glass hull, \$2,500. 213-320-3529. C
- Citizens Band, Johnson II, w/gutter mount and 9' whip, \$75. 213-329-6848. C
- Hearing Aid, Audiotone, over ear. \$100. 213-757-1218. C
- Aircraft Engine, Lycoming 0290G, 125 hp w/mags, carb., logs, manuals. \$250. 213-677-6204. C
- Sony Tape Recorder and player, stereo mod. 521, \$85. 213-672-2370. C
- Wheels, 2 VW or VW dune buggy, 14" x 6" wide rims, complete w/7:50 x 14 tires, \$25. 213-378-4332. C
- Row Boat, 8 ft., \$30. 213-644-2009. C
- Motorcycle, 1968 Yamaha, 250 Enduro, approx. 1,800 miles, fork brace, spare plug hole, dirt ready, \$450. 213-323-1929. C
- Trolley Hoist, 1 1/2 ton, runs on straight or curved 5" I-beam, \$95. 213-545-6719. C
- Shop Manuals, for 1969 Chevrolets, all models, complete set of 3, \$4. 805-495-7550. C
- Bicycles, two, men's, 1 suitable for paper route, 1 3-spd., \$10 ea. 213-423-1363. C
- Saxophones, 2, 1 alto and 1 tenor, \$100 ea. 213-423-1363. C

Wanted to Buy

- Bicycle, girl's 3-spd. 213-542-8936. D
- Tent, side room type, 8'x10', to fit 19' travel trailer. 213-372-1375. D
- Spider Jack. 714-893-7745. D

For Trade

- TV, 21" b&w, in maple cabinet w/doors, UHF converter & VM record turntable, trade for TV, b&w portable. 213-679-6982. E
- 10 Acres, Perris Lake, A-1 for campers, trail bikes, 1 hr. from L.A. 213-377-1074. E

Free (To Be Given Away)

- Poodle, well-trained, small, black, female, spayed. 213-377-3487. F
- Dog, German short hair, 3-yr. old female, spayed. 213-348-1063. F

AFTER EIGHT YEARS

He Takes On A Bigger 'Security' Job

Eight years ago William Hayman went to the West Coast office then maintained by Northrop's Precision Products Department at San Marino to advise personnel on security. One of those he advised was secretary Dolores Hensler.

Recently he decided to become Miss Hensler's permanent advisor on security and other matters and they were married June 19 at the Terminal Island Naval Chapel.

Following the ceremony a wedding dinner was held at the Allen Center Officers' Club, followed by a reception at the Hayman residence in San Pedro. The couple honeymooned at Lake Tahoe.

Mr. Hayman, 18 years with Northrop, is now a senior staff member with Northrop Data

Processing in Hawthorne. Mrs. Hayman, who joined Northrop in 1961, is secretary to Electro-Me-

chanical Division program managers, R. C. Dix and Jaime Oaxaca.



DOLORES AND BILL HAYMAN

EDITOR'S NOTEBOOK

Have you noticed it yet? Balmy, warm weather, kids out of school, more out-of-state cars on the freeways, post cards arriving from vacationing friends. Put them all together and they add up to that annual itch to get going—to travel. Whether your thing is to trek a few yards to a patio hammock, a few hundred miles to a local attraction, or thousands of miles in spanning oceans, it's time for travel.

If you still haven't decided what you will do this summer, NRC Travel Club has a couple of offerings that might appeal to you. One is a special Northrop Charter Flight to and from Europe. It departs Aug. 30 from Los Angeles and returns Sept. 18 from London. The cost is \$275. Also on the agenda for this summer is a 22-day guided tour of Europe, including England, Germany, Holland, Switzerland, Liechtenstein, Italy, Australia, Monaco and France. The departure date is Sept. 11, returning on Oct. 2. And the cost is \$865. Contact Northrop Personnel Activities outlets for details.

Any mention of travel seems to include something about Boeing's 747 superjet, the record-setting transport that continues to amaze and please the traveling public. Northrop employees share in this praise for they play a major role in designing and fabricating all 747s.

The 747 worldwide fleet is proving to be exceptionally reliable. Schedule reliability is around 95 per cent, which means 95 per cent of all flights have departed on schedule or with delays of no more than 15 minutes due to mechanical reasons. By mid-May, the 747s in service had logged a quarter-million hours in the air, including training and route-proving, and total revenue flights completed passed the 50,000 mark.

A 747B, flown by SAS and aptly named the "Huge Viking," carried a total payload of 111,051 pounds, including 52,681 pounds of cargo, 281 passengers, baggage and mail, between New York and Copenhagen in its first week of service. Across the world, a Continental Air Lines 747 has carried what is believed to be a record superjet lower deck cargo to date—63,000 pounds of pineapples—from Honolulu to Los Angeles.

And here is a comforting note about the 747 and how it can help avoid "dysrhythmia," or travel fatigue. A Pan Am travel tip suggests 747 passengers avail themselves of the two wide aisles and numerous cross-aisles to "get up and move around to relax strained muscles and cause the blood to pump harder through the body." And for the lovers of clean air BOAC 747s feature a cabin humidifier that sprays a small quantity of pure water into the cabin in the form of a fine, undetectable mist, to make the conditioned air even more comfortable to breathe.

And in our "firsts" department we have two items. An Irish Air Lines 747 became the first superjet over the North Pole when it went the long way home from Seattle to Ireland on a delivery flight. The second involves a massive traffic jam that occurred in Toronto when Air Canada's first flight touched down there. It seems the interest in the 747 was so high that 3,000 cars got into the airport parking lots, while an estimated 24,000 cars had to drive on, jamming up roads for miles around.

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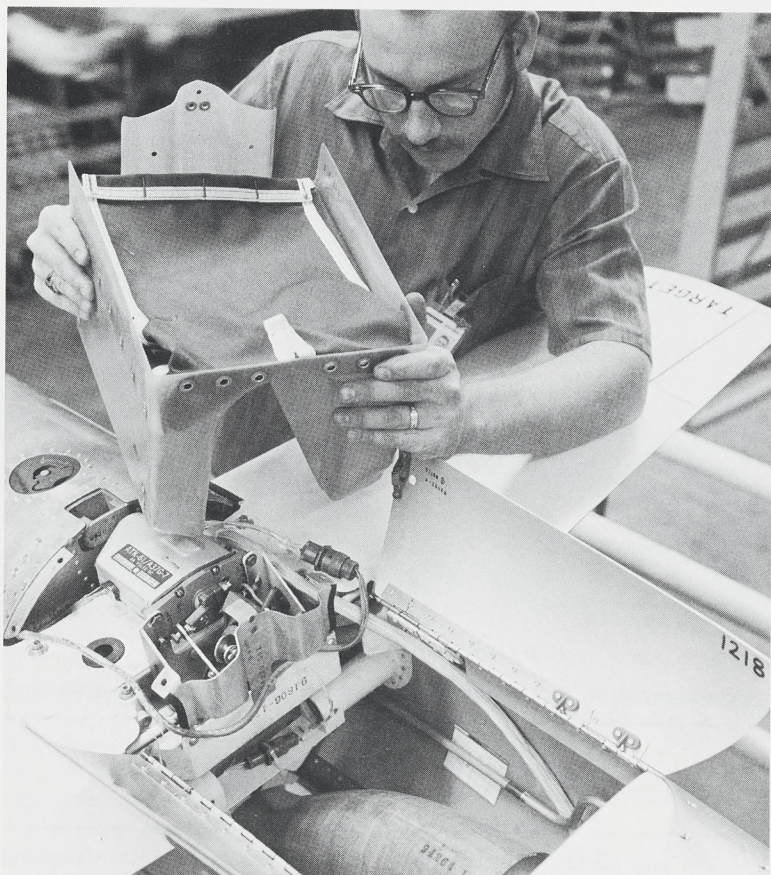
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Editor—Electronics Division Tony Cantafio
Editor—Electro-Mechanical Division Ivy Edmonds
Editor—Ventura Division Peter Toll
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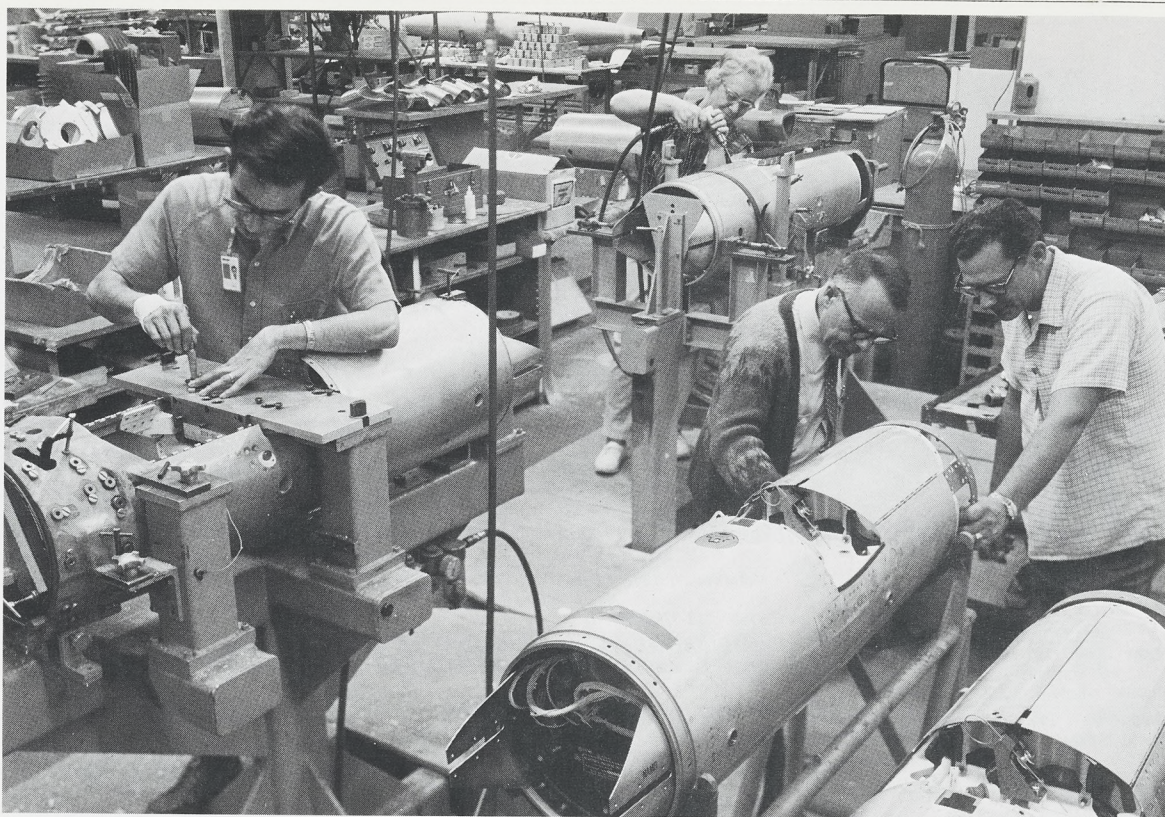
For Sale or Trade

- Camper Shell, custom fit, 42", for 1967 El Camino, \$300 or trade for Honda 90 trail bike. 213-868-3058. M

Craftsmanship Is The Key In Producing Fine Targets

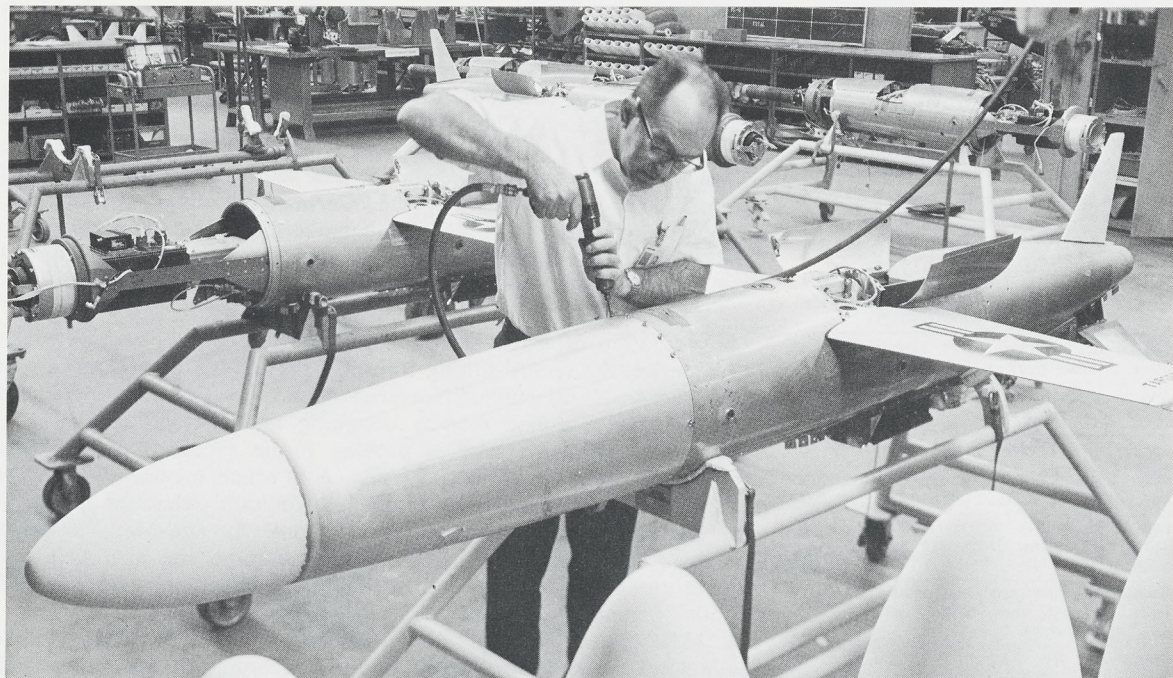


INSTALLING PARACHUTE LINER
Cliff Mark inserts parachute system into QM-74A target.

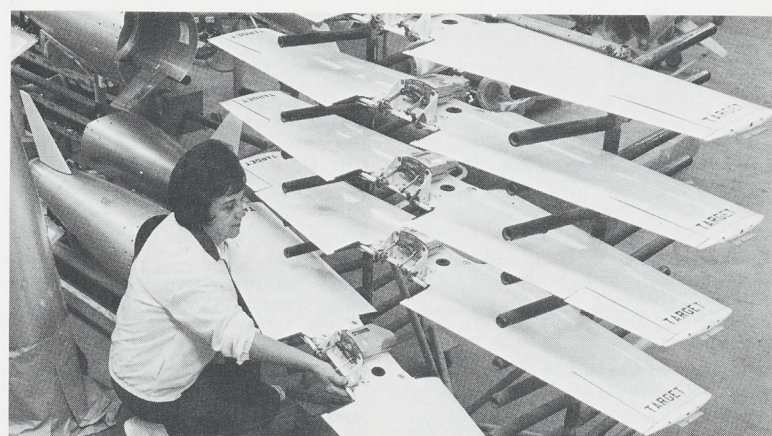


BUSY ON NAMFI TARGETS
From left, Don Ching, Don Fisk, Frances Rush and Chuck Odorfer.

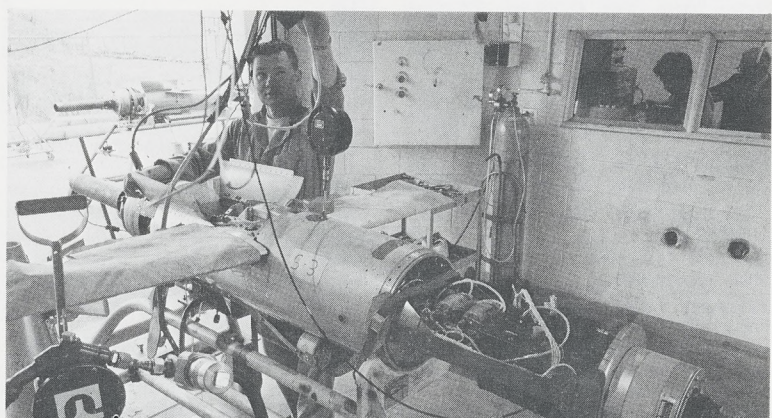
NORTHROP NEWS
PHOTOS BY
ROBERT THORNTON



ASSEMBLING FUSELAGE
Making near-final assembly touches on QM-74A is Bill Merrick.



LINING THEM UP
Margaret Novak puts another QM-74 wing into holding rack.



CHECKING THE ENGINE
Testing the Williams Research-built engine is Jack Mildon.

VENTURA DIVISION RECREATION CLUB ROUND-UP

Ventura Division softballers headed into the toughest round of the season last week with an even 1-1 record.

Their next pair of games put them up against the top-seeded teams in the league.

The Ventura victory was a 5-3 effort against State Farm. Despite some obstacles, the Venturans staved off a late rally by the insurance men with pitcher Chuck Brune going all the way for the win.

Northrop was leading 5-1, paced by Tom Leichtfuss and Dean Wolfe's two hits apiece, when the automatic sprinkler system went on in the top of the last inning.

Play resumed on the hardball diamond in time for State Farm to score two runs and load the bases with two outs when Mr. Brune got the third out with a fly ball to left fielder Bob Jones.

The loss was a 13-2 embarrassment at the hands of the Lobos.

It was a tight 1-0 game until the fourth inning when the Lobos

started hitting the ball and Ventura had trouble catching it and throwing it.

Ventura's two runs came on hits by Junior Salas and Pat Schlender. A long fly ball by Mr. Leichtfuss scored one man and then Ralph Reeves brought the other one home on a fielder's choice play.



With summer coming — and bringing with it out-of-town guests — Ventura personnel will be glad to know that discount tickets to the Universal Studio Tour are now available through the auspices of the Recreation Club.

Many first-time visitors to Southern California want to get a glimpse of Hollywood. One of the easiest ways to show your friends a major studio is to take advantage of the Universal tour.

Universal Studio discount tickets are the latest to be offered by the Rec Club at its office in the Engineering building.

The Universal Studios Tour offers the adventure and realism of

flash floods, a torpedo attack and motion picture production. An "inside look" at 35 sets for television and films and a visit to the Hollywood Cinema Pavilion filled with historic memorabilia and props from famous movies.

The Universal Studio Tour is conducted each day of the week from 9 a.m. to 5 p.m. Hours change on Sept. 7 from 10 a.m. to 3:30 p.m.

Discount tickets for this and other Southland tourist attractions can be obtained by contacting the Rec Club office Monday, Thursday or Friday from 11 a.m. to 1 p.m.



Bill Quick Jr. shot a net 67 to win the A Flight but Roy Shelly had a 70 for second in the B Flight and moved into first place in overall points as the Ventura Golf Club played the Ojai Country Club course.

Young Quick, a college student, topped Mark Peterson (70) and Al Hahn (71) in the A Flight.

John Brazel had a 68 to win the B Flight. Third was Dave Logan with 71. Ed Armstrong edged Dutch Youngers 70.54 to 70.67 in the C Flight. Third was Bob Carson at 76.

Clara Curtis shot a 77 to win the Ladies Flight with Sue Wiscaver firing 80 for second and Zeda Armstrong placing third with 84.

Mr. Shelly, Chuck Brune and W. Lindstrand won closest to the pin honors while D. Jenkins won the longest drive contest.

Mr. Shelly is in first place with 250 points as the Ventura Division golfers get ready for their next tournament on Saturday, July 31, at Elkins Ranch in Fillmore.

Bob Jones has 220 points, Norm Curtis is right behind with 210 and Mr. Brune is tied with Buck Gilmore at 200 points.

Following them in the standings are Warren Sparks, 195, Mark Peterson, 185, Ardon McKinley, 160. Tied at 150 each are Ron Aitken, Ed Armstrong, Wayne Merritt and Joe Sliakis.

Clara Curtis tops the ladies' standings with 255 points. She is followed by Lois Sheridan, 240, Sue Wiscaver, 150, Jaddis Martin, 110, and Zeda Armstrong, 100.



Leon Scrydloff and Tom Metz teamed up to win the annual Ventura Division Bridge Club open pairs championship in a recent Saturday evening event at the Northrop cafeteria.

Mr. Scrydloff and Mr. Metz also won first place in east-west competition. They were followed by Mr. and Mrs. Cal Peterson and the team of Betty Reinisch and Carlene Pierce.

The team of Terry Chin and Tanet Palmer tied with Mr. and Mrs. Bob Tracy for first place in the north-south hand. Third were Mr. and Mrs. Bob Calhoon.

More than 20 players participated in the duplicate event. Prizes will be awarded at the club's annual awards dinner later in the year.

Regular play takes place daily at noon in the cafeteria.

\$6.4 Million MQM Contract

The Ventura Division has received the second increment in a \$6.4 million contract for continued production of MQM-74A aerial target drones for the U.S. Navy.

The contract with the Naval Air Systems Command calls for continued target drone deliveries through July 1972.

This fifth production contract

brings to more than 1,400 the number of MQM-74As ordered by the Navy. Continued production levels do not call for increased manpower levels.

The ground-controlled MQM-74A is used as a training target for Navy anti-aircraft gunnery crews at Norfolk, Va., Okinawa, Hawaii, San Diego and Pt. Mugu, Calif.

Known internationally as the Chukar, the MQM-74A simulates fighter aircraft in flight. The target can fly up to 460 miles per hour. It can be recovered and re-used.

The jet-powered MQM-74A is the latest in a series of 70,000 target aircraft produced by the Ventura Division and its predecessor, Radioplane, since 1938.

NORTHROP NEWS

VENTURA DIVISION

Northrop Corporation, Los Angeles, California

Vol. 29, No. 13

July 7, 1971

DeSpain, Mrs. Clark Observe 20 Years As 22 Venturans Receive Service Awards

If Ventura Division records are any indication, the month of July is a popular one for joining Northrop.

Twenty-two Venturans received service pins this month, including two who marked two decades of service and eight with 15 years' service.

Leading the list are Clark DeSpain, manager of Facilities and Property, and Joan Clark, secretary to Tom Dvorak in Contracts Administration. Both received 20-year emblems this month.

Mr. DeSpain began his Northrop career as an engineer in the Engineering Laboratories in the Aircraft Division. Five years later he went into planning and construction work before being assigned to Contracts Administration to coordinate operations of government-owned facilities on Northrop property.

Subsequent positions led him to the responsibility of facilities support for the Northrop Space Laboratories and later for the Northrop Corporate Laboratories. After a brief stint in the Corporate office, Mr. DeSpain transferred to his present job at the Ventura Division on Sept. 1, 1968.

Mrs. Clark also started at the



Mr. DeSpain



Mrs. Clark

Aircraft Division in 1951. She was a department clerk in Industrial Engineering (and worked with Mr. DeSpain there) before assuming a secretarial position which led to work in Contracts.

She transferred to the Ventura Division in 1963 and has dealt with virtually every Ventura product area in Contracts. Because of the unique work in Contracts, her title is contracts assistant.

Receiving 15-year pins are:

Tony Piscuskas, Financial Management; Lou Castagana, Engine Test unit; Bill Schultz, Receiving; Peggy Walthuis, Contracts; Cathy Tremer, Construction and Maintenance; Silvio De Pasquale, Machine Shop; Hal Kornell, Engineering Planning; and Shirley Miller, Inventory Control.

One man received a 10-year emblem. He is Oscar Cease, of Fabrication, Precision and Assembly Inspection.

Qualifying for five-year pins are:

Tony McEwan, Systems Analysis; Harvey Linebarier, Research; Bob Hodson, Project Planning and Industrial Engineering; Betty Randolph, Blueprint Control; Gene Davis, Assembly Control; and Jim Kearney, Construction

(See SERVICE, page 6)



READYING POSTERS FOR DISPLAY

Morey Schechter and Marian Robinson review safety reminders.

Posters in Cafeteria to Highlight Driver Safety

"Watch Where You're Going—Not Where You've Been." "Expect The Unexpected." "Feeling Drowsy? Don't Drive!"

Posters bearing slogans such as these and other colorful reminders of driver safety will appear soon in the Ventura Division cafeteria through the courtesy of the San Fernando Lodge of the Fraternal Order, Knights of Pythias.

The posters were drawn by junior high and high school youngsters for the annual Knights of Pythias contest stressing highway courtesy and safety.

They were offered for display in the Ventura cafeteria by Ventura electrician Morris Schechter. Mr. Schechter is a past-chancellor (president) of the fraternal service group's San Fernando Lodge.

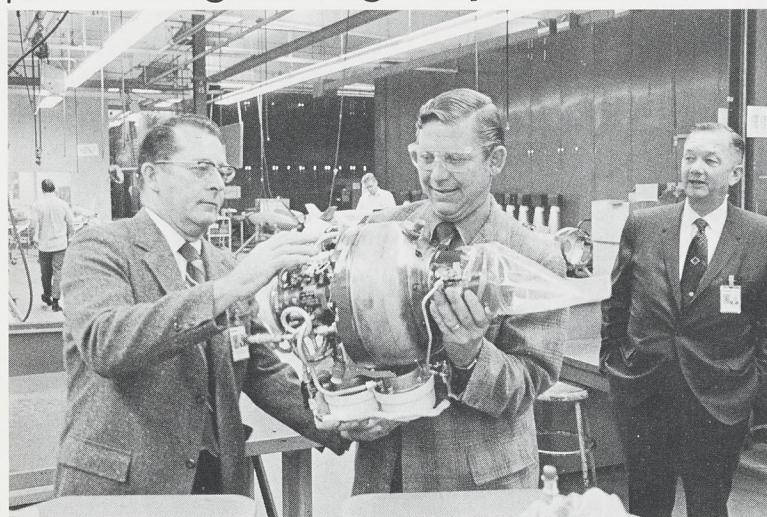
He has also chaired the Knights' statewide poster contest.

Unfortunately, none of the posters to be displayed at the Ventura Division were top prize winners. "The winners are now being judged at the state and national levels for top awards," Mr. Schechter explained.

He said the purpose of the contest is to make youngsters highway safety-conscious when they first begin their driving experience and are taking courses in driver education.

"But being safety-conscious doesn't end there," Mr. Schechter said. So the posters will be displayed in the cafeteria through the cooperation of the Industrial Relations office. "We can never be too conscious about safety," added Mr. Schechter.

Neighboring Mayor Visits



CAMARILLO MAYOR Stanley J. Daily wasn't put to work by Bill Kearney, left, even though it looks like it. Mayor Daily hefted the Williams Research-built MQM-74A and Chukar engine on a recent tour of Ventura Division facilities. Frank Tipton, assistant to the general manager, is at right. He coordinated the tour.

Dividend, Wider Loan Policy OK'd By Credit Union

Directors of the Ventura Division Credit Union at their recent meeting authorized a 5.1 per cent per annum second-quarter dividend on shares and broadened loan policies.

New loan policies are now in effect for Credit Union members.

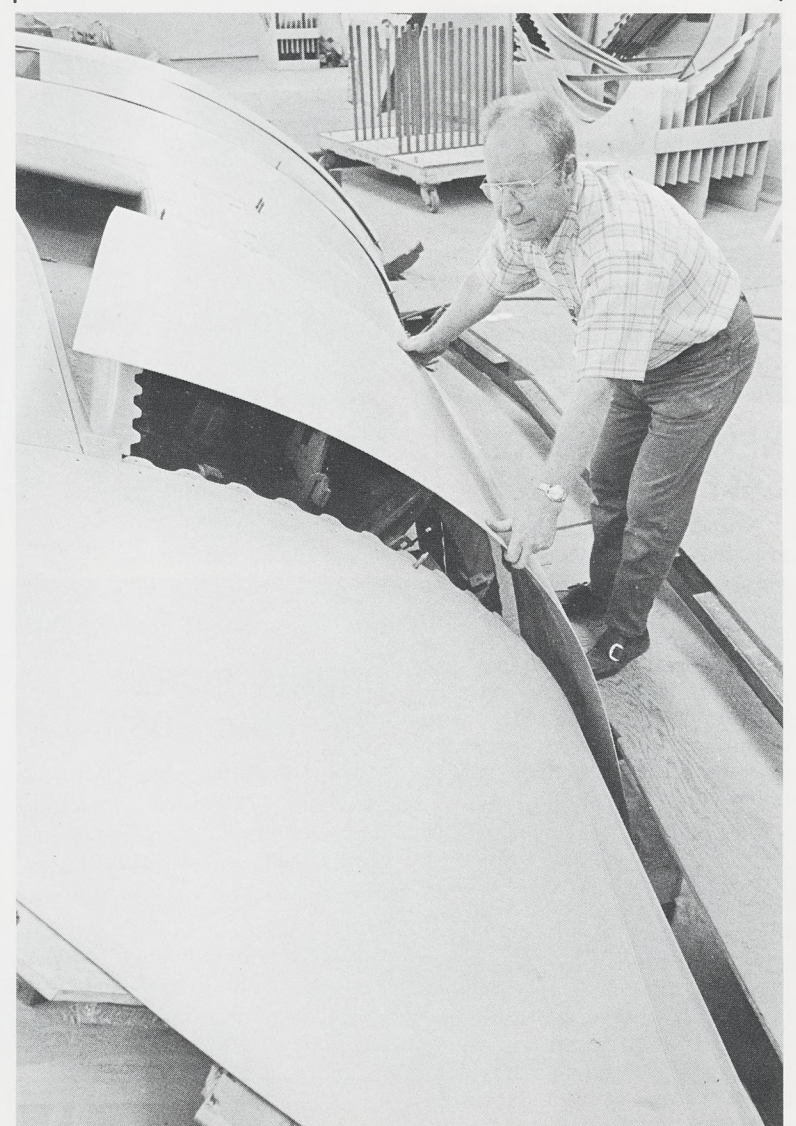
Members who are no longer on the Northrop payroll but have retained their savings (shares) in the Credit Union may now enjoy borrowing privileges as well. This policy only affects present and future members; it is not retroactive.

Also, Credit Union members who wish to borrow money and use their savings as security now can do so at 6.5 per cent interest rate instead of the previous 9 per cent.

The Credit Union office, which is located next to the cafeteria, is open from 11 a.m. to 12:20 p.m. and from 3-4 p.m. daily.

Ventura personnel are invited to take advantage of the many services, including convenient payroll deduction, available through the Credit Union.

On The Job . . .



SAM TRINKLE has been working on the final assembly jig of the 747 wing fairings since he first joined Northrop and the Ventura Division nearly 3½ years ago. Before coming to work with Northrop he spent 20 years as a flight engineer in the U.S. Air Force.

Flight of Four A Pretty Picture



ROYAL NETHERLANDS Air Force formation of four Northrop F-5B's wings its way above the clouds on a routine training mission. Sight of four two-seated F-5B's is a rare sight. Royal Netherlands Air Force photograph.

WITH HALLICRAFTERS' HELP

Patient Overcomes Hospital Tedium

When Diane Price of Hallicrafters went to the hospital she never lost contact with home, friends, the company bus and never missed her daily lunch chats with her daughter.

The secret of being everywhere as well as in bed in the hospital was a Hallicrafters FM-5B Transceiver with a PS/A16 power supply which the Engineering and Service Department provided Mrs. Price during her hospital stay.

When Mrs. Price learned that she was to have surgery, she mentioned to her husband, Don Price, senior Quality Control engineer, and her daughter, Donita Shaw, supervisor, Order Control, that a Hallicrafters transceiver would help her pass the long hours in bed.

Mrs. Price is a licensed ham operator (K9TRP) and the set provided by Engineering and Service was aligned to cover local frequencies putting her in touch with the plant, the Hallicrafters bus, her family and other ham enthusiasts in the Chicago area.

Mrs. Price's broadcast day began when she contacted her daughter (K9TVN) and her husband (K9PDT) in the car as they

drove to work each morning.

Riders on the Hallicrafters bus could hear her also and after the initial contact, she also conversed with them each morning.

Since all CFAR (Chicago FM Amateur Repeater) transmissions can be monitored by all members, she soon was receiving calls from ham friends all over the area who wished her well and even many calls from strangers who extended best wishes.

At work, Mrs. Price usually lunched with her daughter. So during her hospital stay they kept up the contact via the Hallicrafters FM-5B, sharing the meal by radio.

At first Mrs. Price was concerned about disturbing her fellow patients with her bedside broadcasts. But she found that they enjoyed listening in and actually looked forward to airtime each day.

This activity rekindled her interest in amateur radio.

Years ago her family was featured in a Chicago paper because all members were licensed ham operators. Later she became less active, but now that she is out of the hospital with her interest renewed by her hospital broadcasting, she is "dusting off" her home station and will "work the world."



HALLICRAFTERS EMPLOYEES KEEP IN TOUCH VIA RADIO
From hospital bed Diane Price talks with daughter, Donita Shaw.

DENNIS PICKED FOR NSIA POST

Ward B. Dennis, Northrop vice president — Forward Planning, has been named to chair an important National Security Industrial Association (NSIA) committee.

Mr. Dennis will chair NSIA's Research and Engineering Advisory Committee's planning subcommittee.

**IS IT NEWS?
CALL EXT. 4273
HAWTHORNE**

Bill Shuck is Enjoying California's Sunshine After Norwegian Duty

When Bill Shuck left his hometown of Evansville, Ind., and headed to the West Coast 25 years ago he looked forward to a new life in the sunshine—no snow, ice or sleet for five months of the year.

And it almost worked out that way. At least until he joined Northrop in 1950.

Mr. Shuck, a Field Service representative, recently returned from a 15-month stay in Norway with the Norwegian F-5. Evansville was nothing like that.

He covered four bases ranging from Bodo Air Base which is above the Arctic Circle to the southernmost, 1,000 miles away, just outside the capitol city of Oslo.

Up there at Bodo (pronounced Boo-duh) the mercury shivers its way down to 45 degrees (Fahrenheit) below zero for much of the winter and fights its way up to 40 or 50 above zero in the summer.

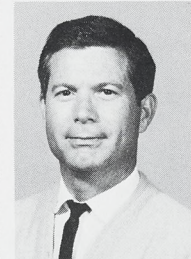
"But down near Oslo it's much better,"

Mr. Shuck said, "sometimes it gets up into the 60's." When he left Oslo in April it was snowing.

Despite the cold, Mr. Shuck enjoyed working in Norway. He found the Royal Norwegian Air Force crews "very, very conscientious" in maintaining their F-5's.

"As soon as those planes land they are whisked into warmly air-conditioned hangars," he said. "The Norwegians know that prolonged cold can hurt the planes so they are very careful."

Maintenance problems, subsequently, were routine.



Mr. Shuck

On his few days off, which were infrequent, he took advantage of the skiing, ice skating and freshwater fishing which make Norway a popular place for sportsmen. "It's a beautiful country. From the air the fjords look like a picture post card," he noted.

Learning the customs, habits and language of the country he is working in, offer a Field Service representative such as Mr. Shuck a unique opportunity.

And if variety is the spice of life, he is virtually a shelf full of spices.

Before going to Norway he spent 18 months as an F-5 field rep in hot and humid Thailand. The total turnaround in climate when he went to Scandinavia required a full new wardrobe.

Preceding Thailand, Mr. Shuck was in Turkey for three years. With a climate similar to Southern California, Turkey was one of Mr. Shuck's favorites. A history buff, he also enjoyed visiting the ancient ruins in Turkey.

With service on the F-89 and Snark taking him all across the country in his first 14 years with the company, Mr. Shuck has done a lot of travelling.

But now he is putting away his suitcases for a while, except for vacations.

He is now based at the Aircraft Division as program maintainability engineer representing Product Support on development of the Northrop A-9A fighter.

"It's nice to be home," the genial Mr. Shuck says. "But it takes a little getting used to."

Northrop, Zinser Reach Agreement on Fiber Machines

Zinser Textilmaschinen GmbH and Northrop Carolina have entered a licensing agreement for the German firm to manufacture and sell, through its American subsidiary, a new line of high-speed take-up machines patented by Northrop.

The machines and supporting equipment are for processing synthetic fiber yarn.

The license agreement covers the United States as well as the world market.

Announcement of the agreement was made recently by J. M. Ricketts, president of Northrop Carolina, Hermann Scherr, general manager of Zinser Textilmaschinen, and Chris H. Sack, vice president of American Zinser.

The announcement said that there will continue to be a close association between Zinser and Northrop. Northrop Carolina will continue to manufacture, assemble and test the take-up machines for the United States market. Zinser will phase in manufacturing operations as the volume grows.

In commenting on the license agreement, Southern Textile News said, "The high-speed take-up as licensed by Zinser is a key piece of equipment around which filament yarn producers are planning their current and future production facilities."

"The maximum operating speed of 4,000 yards per minute is a significant technological breakthrough in the industry."

Credit Union Members Get Dividend

Members of the Northrop Credit Union will receive a semi-annual dividend based on an annual rate of six per cent for their savings on deposit for the period ending May 31, 1971.

Credit Union President Glenn Thornton announced the latest dividend payment on behalf of the board of directors.

Mr. Thornton also noted that this rate compounded semi-annually, as the Credit Union does, amounts to an annual dividend rate of 6.09 per cent.

Quarterly statements to be distributed to all members this month will reflect the amount of

individual dividends posted June 30, 1971.

Northrop Credit Union has now paid dividends of six per cent or better each year since 1963.

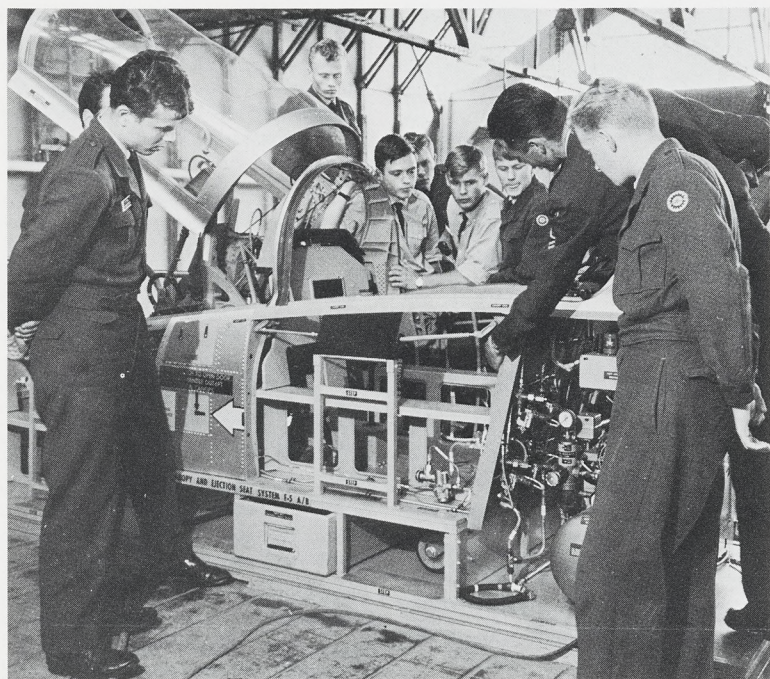
"Northrop Credit Union is proud to continue to pay a good return on savings despite the current unsettled economic conditions which prevail," Mr. Thornton said. "We hope that all Northrop employees will continue to think of us when they are in the market for low-cost loans for automobiles, trucks, trailers, mobile homes, home improvements or personal reasons."



DESIGNING MOBILE TRAINING SETS FOR THE F-5E
Paul Steed, standing right, heads veteran Northrop group designing trainers.



WILLIAMS AFB TRAINING SCENE
USAF instructor uses Northrop trainer to teach allied nation students.



CANOPY AND EJECTION SEAT SYSTEM TRAINER
Norwegian maintenance crews learn basic details at home.

Artist Donates Seascape To Aid Youth Band Cause

Jack Flannagan, Electro-Mechanical Division, has donated one of his large seascapes to help the Whittier Elks Club's Cavalier Youth Band raise funds for uniforms and travel expenses, according to Northrop's Jack Polk, who is a member of the fund drive's Ways and Means Committee.

The band, considered one of the best in the nation, won the Best Marching Band title in the California state-wide competition last year.

Mr. Flannagan's seascapes are well known to his fellow Northrop employees. Many of them have been displayed in the Y-3 lobby during the last few years.

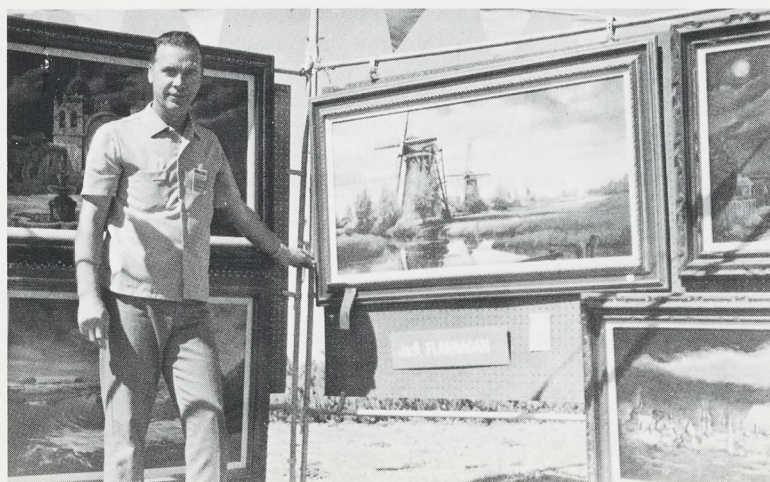
He calls himself an "NRC artist" since he first began to paint with the NRC Art Club eight

years ago. Beginning as an amateur he quickly developed a truly professional technique.

Although he paints a wide variety of subjects, his special interest is seascapes. These he paints from numerous quick sketches made at the beach which are then incorporated into the finished painting in his studio.

"Painting a wave," he explained, "is like painting a galloping horse. Neither holds still for you. It is much easier to assemble your 'notes' or sketches and then reconstruct your painting at home."

His paintings are made in three steps. First he makes a rough sketch on the canvas. This is covered with an underpainting. Then in the final step he adds details to create the final effect.



JACK FLANNAGAN AND HIS ARTWORK

Northrop Applying Mobile Trainer Expertise in MTS Design for F-5E

Design work on Mobile Training Sets (MTS) for Northrop's new F-5E fighter is moving steadily forward concurrent with over-all developmental efforts on the F-5E.

The sets are a critical item in the total aircraft package in that they provide a means for training maintenance personnel and technicians who will service the F-5E in operational use.

Northrop is on contract to design and produce five sets for the F-5E Program. Each is comprised of 15 individual aircraft system trainers, 600 technical transparencies and a technical order, operating and maintenance handbook.

Here and Abroad

One MTS will be delivered to Williams AFB, the others to allied nations slated to receive the F-5E.

Product Support's Customer Training organization is releasing detailed trainer drawings at a steady pace and plans to complete this phase of the program by early 1972. Advance Production is at work fabricating frames, bases and covers for trainers and will handle assembly tasks in progressive steps.

Demonstration of the first MTS is now slated for September of 1972 as a prelude to delivery.

Northrop has selected an experienced group of employees to handle MTS tasks at the Aircraft Division. Those presently assigned to the effort represent

more than 128 years of experience in designing and building training equipment. Most have had a part in the development of more than 400 high quality, durable system trainers Northrop has produced for such aircraft as the F-89, T-38, F-5A and F-5B and the SM-62 Snark missile system.

Paul Steed is manager of Customer Training. Assisting him are such key individuals as H. E. Witherwax, R. W. Vogel and Q. H. Cunningham. Rex Thornhill and E. C. Mensak guide Advance Production activities on the MTS.

Northrop builds each mobile trainer as authentically as possible. Each trainer depicts an aircraft system. They may cover electrical, armament, flight controls, instrument, fuel or canopy and ejection seat systems as well as others. Each is made of actual aircraft parts and components which perform exactly as they do in the aircraft, down to switches and gages.

Few Deviations

Liberties are taken only when safety dictates. For example, fuel is simulated and compressed air replaces explosive charges.

The armed forces of allied nations, like those in the United States, have turnovers of maintenance personnel and technicians on a regular schedule. Thus, new servicemen must be schooled in the very latest service techniques. This is the role of the MTS.

Following the learning of certain basic skills, personnel are ready for training on the MTS.

With them they can see exactly how each part fits, works and interfaces with others. They can operate them, repair them when necessary and check them out.

Instructors utilize built-in MTS capabilities to insert malfunctions into trainers. Then they watch as their students isolate the problem and solve it with repairs.

Working Together

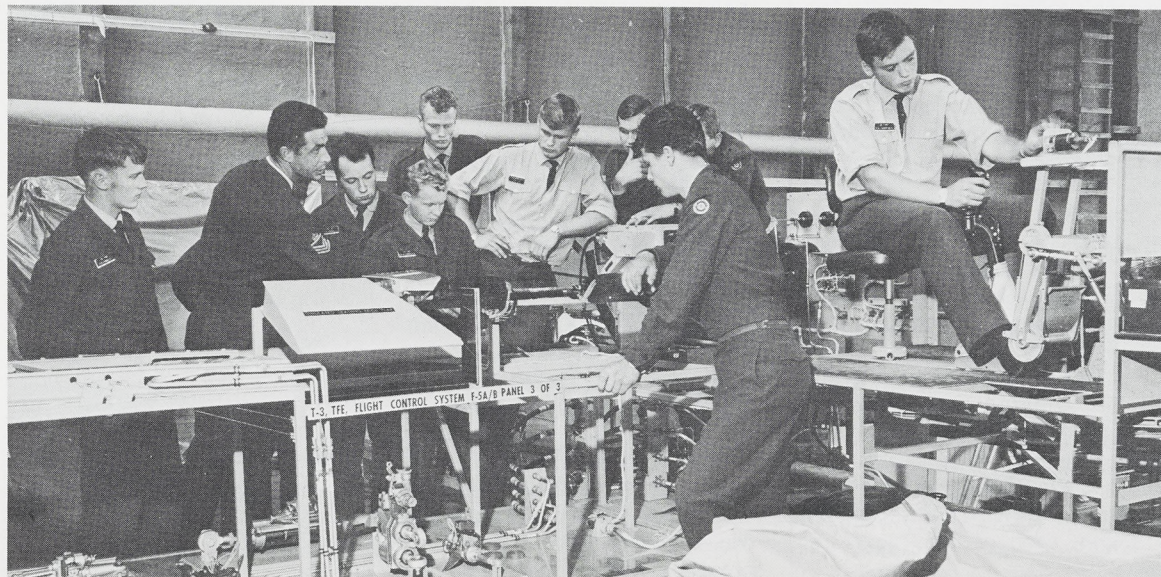
Key instructor personnel from allied nations receive their training at Williams AFB, then, assisted by USAF-provided instructors, set up their own training programs in their country following receipt of MTS.

Attesting to the completeness of this training concept is the fact that within three months after the beginning of training with Northrop MTS most nations are capable of and ready to handle their own operational maintenance.

Northrop technical representatives are all familiar with Northrop MTS and assist in their utilization when necessary.

Close coordination is a must in the development of MTS equipment. Northrop personnel work with members of the USAF F-5E System Program Office, with Headquarters, Air Training Command, and the USAF Training Center at Sheppard AFB.

**IS IT NEWS?
CALL EXT. 4273
HAWTHORNE**



NORTHROP-BUILT F-5A/B TRAINER IN OPERATION
Royal Norwegian Air Force instructor explains details to trainees.

FOR AIR RACE COMPETITION

Bill Warwick Designs, Flies His Own

Bill Warwick's avocation is the same as Northrop's business: he designs and builds airplanes.

"But on a smaller scale, of course," he adds.

Mr. Warwick, a laboratory technician with the Aircraft Division's Test Support Services group, does not believe in building planes from a kit. He likes to make his own design and then build from scratch in his home workshop. The success of his designs is shown by the fact that a racing plane he made took fourth in the Reno air races last year and a first in the B section at Fort Lauderdale, Florida.

This year in the first race of the second season at Cape May he won two heat races and placed first in the main event. These races are warmups for the Na-

tional Air Races to be held in Reno later in the year.

He raced in the Sport Biplane Category. In designing the plane for the races, he obtained basic specifications from the Professional Racing Pilots Association. Within these limitations, such as the requirement for two wings since this was a biplane class, weight, and fuselage length, he then had a free hand in working out his design ideas.

Designs Others

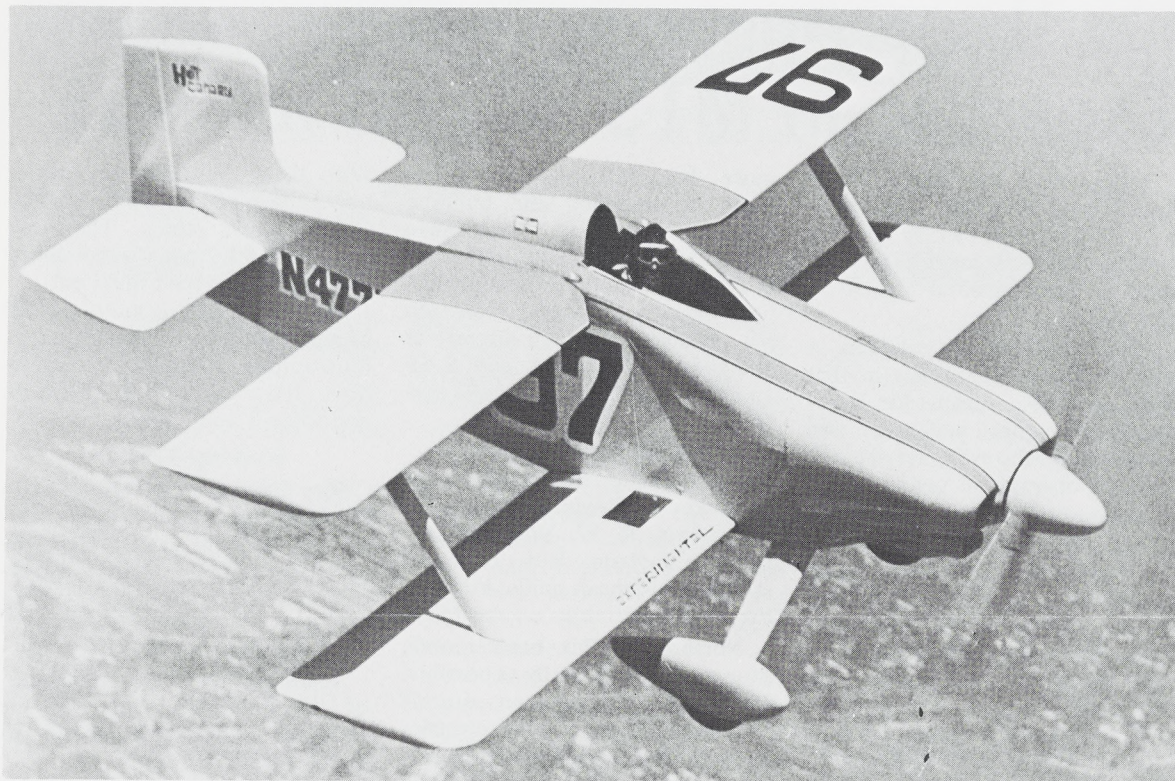
In addition to his racing plane he has designed several other sports planes. He has made blueprints of some of his designs for sale to others.

Mr. Warwick has been "messing," as he calls it, with planes since childhood. Even then he

wasn't satisfied with kits and customized his model planes. As he grew older he obtained his own pilot's license and began building the planes he flew.

"I think you get a bigger kick out of flying when you take off in a plane you designed and built," he said. "You have the feeling that 'it's all mine.'"

The races he has been flying are around a circular pylon course which are not much larger than a stock car track. He flew the course, which is located at Wildwood, New Jersey, at a speed of 163.934 miles per hour. As a result of the victories he is now leading nationally in points. Two additional races are set for September and a final one in October or November.



BILL WARWICK AND HIS SPORT BIPLANE
Northrop technician has been successful in air race competition.



PETITE CHARMER

Jency Luceyk and her pony, Ronica, are shown above just after the six-year-old miss had received another riding honor. At left are some of the many honors she has received. Young Northrop granddaughter has been riding since she was three.

Six-Year-Old Jency Luceyk Cuts Fine Figure Aboard Ronica in Riding Events

Tiny Jennene (Jency) Luceyk has teamed with her pony Ronica to win 30 ribbons and 4 trophies at local pony and horse shows.

Six-year-old Jency, granddaughter of Frank McGinley, Electronics Division maintenance carpenter, has been riding since she was three.

In her white cowboy hat, blue Western shirt and pants with a silver buckled belt, Jency cuts quite a dashing figure mounted on Ronica at the shows. So far this year she had won awards in

Western Pleasure events, Lead Line Equitations, and is due to enter the State Pony and Horse Show at Turlock in late July.

She learned to sit on a horse when she was three and soon after had her own pony. The pony would allow no one but Jency to touch him. Grandfather McGinley reports that it was some sight to see three-year-old Jency trudge out and put a rope around the pony's neck after other members of the family had run themselves breathless trying to corner the reluctant mount.

Teen-Ager Finds Time for Many Service Chores

Lynda Susan Jackson, daughter of Norm Jackson of Cost Estimating, Aircraft Division, is an 18-year-old miss who finds time in her busy schedule to perform many community services.

When she entered high school four years ago, Lynda rose at 5 a.m. daily to attend seminary classes at church. On occasion she doubled as an instructor for youth her own age.



Tuesday evenings she teaches a class for young children at church and each Sunday she also conducts a Sunday school class.

In addition to these tasks at a Church of Latter Day Saints, Miss Jackson enrolled in the Harbor General Hospital "Candy Strippers" program, averaging one evening each week working there.

Her father reports that despite this busy routine, Lynda carried a 3.0 grade point average in her senior year and received an excellent citizenship recognition in her classes, an honor she has also earned in each of four years in school.

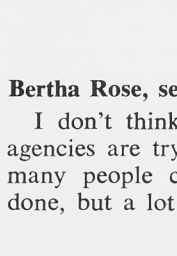
Lynda plans to enroll in college this fall to study nursing.

WE ASKED THEM — Are Families Adequately Informed on the Dangers of Drugs?



Jack Tripp, Material coordinator, Electronics:

I think we, as parents, need to have more information. The kids today seem to be more aware of the dangers involved with drugs.



Bertha Rose, secretary, Ventura:

I don't think so. Although many groups and agencies are trying to get more information out, many people close their ears. A lot has been done, but a lot more could be done.



B. H. Brittingham, Payroll, Aircraft:

I think that neither parents nor children are properly aware of the dangers of drugs. A real vigorous information campaign is needed to awaken them.

Brenda Madsen, Repro typist, Electro-Mechanical:

I don't think they are well enough informed. As for myself, I don't really know a thing about drugs. I would like to see a strong public school program set up.



Carrie Matthews, stock clerk, Electronics:

Yes. My children have been bringing home literature for the whole family to read. It was very informative.



Bill Gavan, leadman, Ventura:

No. There is definitely a need for more publicity and information. Everyone should be more educated when it comes to the drug situation.



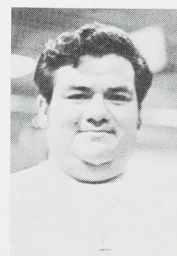
Vanessa Herod, secretary, Aircraft:

No, because the drug traffic is extensive. The open information on the dangers of drugs has only been in effect from one to two years, but if there were more assemblies in the schools with former addicts, massive meetings between adults and children, and more on television, the percentage would decrease.



Ralph Ramirez, Page Court, Electro-Mechanical:

I used to think they weren't, but now I think they are. The government is doing something about it. People are going to be better informed than they have ever been.



Classified

Classified ad service is provided free of charge to all Northrop personnel. Ads for agencies, commercial enterprises and private businesses are not accepted. The Northrop News reserves the right to edit or omit ads. Ads are limited to two items per person per issue; each category to be submitted on separate form. Deadline is noon Wednesday, one week before publication.

Automobiles For Sale

- Volvo P1800S**, 1965, new paint, sport coupe, 4-spd. & o/d, \$1,600. 213-325-5705. A
- Datsun 1600**, 1966, needs body work, good for parts, \$150. 213-449-0361. A
- Ford**, 1966 Falcon, 43,000 mi., r/h, 3 new tires & battery, new brakes, \$750. 213-322-5503. A
- Buick Special**, 1963, 4-dr., \$425. 213-375-9340. A
- Camaro**, 1967, 327 eng., new tires, radio, tape, posi, \$1,200. 213-675-1354. A
- Mustang**, 1967, 4-spd., 4-bbl., fiberglass wide ovals, \$1,000. 213-785-1405. A
- Falcon**, 1961, stick, 2-dr., new clutch, new battery, o/hauled trans., \$125. 213-370-3418. A
- Mustang**, 1965 2+2, 289 cu. in., p/s, r/h, auto., \$750. 213-762-2284. A
- Mustang**, 1965, V-8, mags, AM-FM, stick, \$850. 213-323-9003. A
- Pontiac Bonneville**, convt., 1965, full power, a/c, \$775. 213-830-1365. A
- Volkswagen**, 1967, sedan, 18,000 mi., r/h, w/w, \$1,300. 213-374-3978. A
- Station Wagon**, 1963, Mercury Park Colony, full power, a/c, new tires, r/h, \$600. 213-377-5884. A
- Volkswagen**, 1961, \$500. 213-676-4123. A
- Buick**, Le Sabre, 1968, air, d/brakes, cruise control, \$2,000. 213-679-6917. A
- Chevrolet**, 1968 Impala, 75,000 mi., 327 cu. in. eng., \$395. 213-324-9087. A
- Chevelle Malibu El Camino**, 1969, stick shift, chrome tie-down bars, fender wells, trailer hitch, glass-belted tires, 2 new, 29,000 mi., orig. owner, \$2,100. 213-326-0501, 213-373-4298. A
- Volkswagen**, 1969, orig. owner, \$1,500. 213-291-3989. A
- Abarth Fiat Zagatos**, 2 1959, dbles. bubble, damaged, extra 850 cc eng. & transaxle, \$750. 213-377-6193. A
- Land Rover**, 1962, long whl. base model, 4-wheel dr., 8 forward spds., \$1,200. 213-545-6719. A
- Cutlass**, 1966, 38,000 mi., \$695; Challenger, 1970, 23,000 mi., \$2,295; station wagon, Mercury, 1969, 41,000 mi., \$2,595; Credit Union ext. 1117. A
- Econoline**, 1970 Ford, super van, 123" w.b., V-8, auto., a/c, r/h, under 20,000 mi., \$2,995. 714-535-4864. A
- Fiat**, 1969 convt. & h/top, mags rear, \$300 & take over \$66 mo. pymts., or \$1,600. 213-830-5284. A
- Volvo**, 1962 P-1800, AM-FM, radial tires, \$90. 213-329-1705. A
- Ford**, 1962, 4-dr. sedan, chrome whls., 6-cyl., std. shift, \$275. 213-676-9518. A

Household Items For Sale

- Wall Shelf**, early American, 40"x46", chairs, 2, newly uphol., gold/brown, \$15 ea. 213-426-4060. B
- Refrigerator-Freezer**, Frigidaire, frost-proof, 13 cu. ft., \$75. 213-324-9130. B
- Stove**, 36", O'Keefe & Merritt, white, 4-burner, broiler storage compt., \$25. 213-375-4591. B
- Range**, gas, Tappan, w/center griddle, auto. features, \$75; dishwasher, Lady Kenmore, portable, Sears, 2 yrs. old, \$125. 213-377-0783. B
- Dryer**, Frigidaire deluxe, gas, auto., \$20. 213-675-8813. B
- Bed**, full size, h/board, f/board, box spring, mattress by Simmons, \$50. 213-421-1321. B
- Shag Rug**, 8"x12", avocado green, \$50; dinette set, distressed maple, round drop leaf, \$75. 714-893-0259. B
- Roll-Away Bed**, double size, innerspring mattress, \$35. 213-328-4052. B
- Washing Machine**, Sears Kenmore, auto., model 8440, upright, \$50. 213-644-6164. B
- Roll-Away Bed** w/innerspring mattress, \$20. 213-325-5245. B
- Crib** & mattress, drop sides, blue on white; hi-chair, \$25. 213-376-4831. B
- Mattresses**, 2, Beauty Rest, twin size, box springs, 2, \$15 ea. 213-326-0124. B
- Refrigerator**, Hotpoint, 17 cu. ft., \$40; vacuum cleaner, Hoover, w/attach., \$10. 213-474-5845. B
- Dining Room Table**, Early American dropleaf, seats 12, \$75. 213-943-8187. B
- Washer**, Kenmore, 7-cycle, & dryer, gas, \$20 ea., \$35 both. 213-379-5690. B
- Dishwasher**, G.E. portable, hvy. duty deluxe, \$90. 213-368-1269. B
- High Chair**, crib, other misc. baby items, \$37 or sell sep. 213-324-2992. B
- Bedstead**, Salem maple pineapple top, 4-poster, dbles., firm box spring & mattress, \$80. 213-292-9322. B
- Crib**, w/innerspring mattress, \$15. 213-867-5809. B
- Twin Bed**, foam mattress, box springs, metal frame w/casters, \$20. 213-325-8175. B

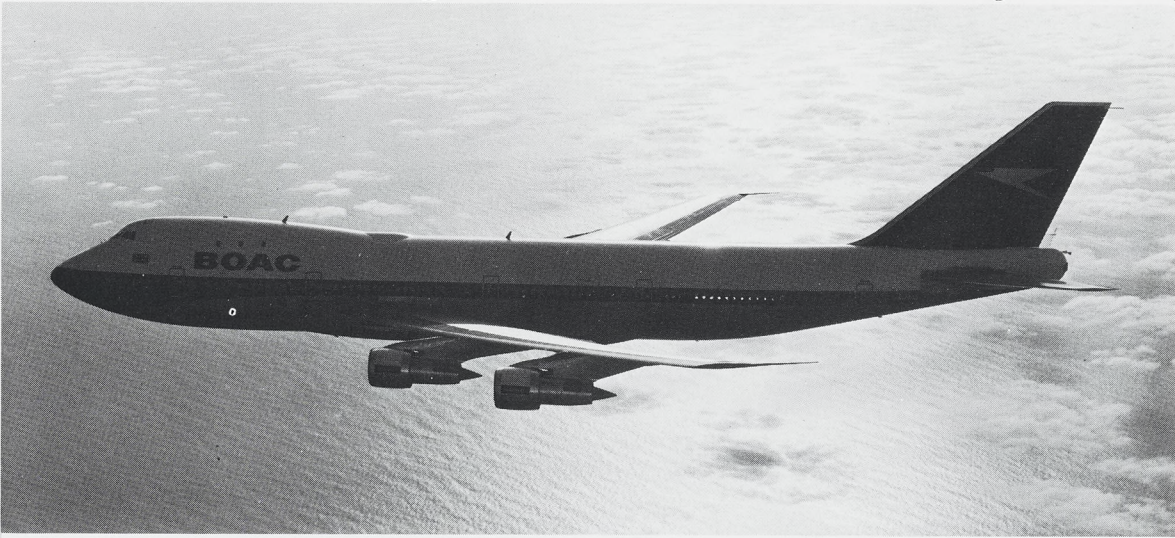
Household Items For Sale

- Bedroom Set**, Thomasville, walnut & pecan, dbles. bed, h/board w/frame, dbles. dresser & mirror, 2-dwr. night stand, will inc. box springs & mattress, \$250. 213-670-6090. B
- Freezer**, RCA Whirlpool upright, 11 cu. ft., white, approx. 4 yrs. old, \$75. 213-675-5946. B
- Silverware**, Gorham sterling, Chapel Rose, 4-pc. place setting, butter knife, serving spoon, \$75. 213-377-4811. B

Miscellaneous For Sale

- Tires**, 5 E78-14, never used, \$125. 213-378-7479. C
- Rifle**, 44 mag., Ruger carbine w/sling, \$75. 213-532-7175. C
- Pony**, 7 yrs. old, brown & white pinto mare, \$100; trailer, utility 5'x10', \$100. 213-323-9586. C
- Mini Bike**, custom blt., 7 hp, Taco frame, clutch, \$100. 714-826-9931. C
- Stereo**, portable, 1970 G.E., model 800, 2 detach. spkrs., fold-up turntable, \$70. 213-831-9707. C
- Swimming Pool**, portable, Sears, 18' wide, 4' deep, filter, motor, ladder, vacuum, dip net, chlorine, redwood deck, 1 yr. old, \$245. 213-672-1716. C
- Acreage**, 6.14 acres, Palos Verdes Estates, Lunada Bay section, unobstructed view of ocean, shoreline & islands, possible 11 lot sub-division or private estate, \$135,000. 213-377-1478. C
- Piano**, upright, w/bench, \$150. 213-679-9195. C
- Chevrolet Engine**, 409 cu. in., over 425 h.p., w/cam, headers, 2-4 bbl. carbs., \$300. 213-324-7038. C
- Sailboat**, 15', Glen L 15, w/trailer & cover, \$750. 213-963-5524. C
- Roof Rack**, storage drawers, parts bin & security cage, \$125 or sell sep. 213-941-1865. C
- Tape Recorder**, Webcor high fidelity portable, \$25. 213-831-4087. C
- Boat & Trailer**, 18' w/seats, bltin gas tank, u/d & other running gear, \$1,475; pup, poodle, AKC, white miniature, 4 mos. old, housebroken, \$45. 213-862-2793, 213-866-4104. C
- Complete Aquarium**, inc. 5 gal. tank, cover, hood, light, pump, outside filter, gravel, plants & guppies, \$12. 213-674-5427. C
- Exterior Doors**, 3, 80"x36", 80"x30" & 78"x32"; windows, 6, (2) 36"x24", (2) 30"x14", & (2) 30"x17", \$20. 213-324-7059. C
- Transceiver**, Heath "Sixer," kit form, \$40. 213-645-8004. C
- Gumball Machine**, penny or nickel, Atlas Master, 1950, \$17.50. 213-372-1386. C
- Home**, provincial, 3-bdrm., 2 bath, fam. rm., f/place, lge. closed in patio, 5 rms. carpeted, close to Del Amo shopping center, \$40,-750. 213-370-2940. C
- Rifle**, 30-06 Mauser, sporterized w/Bausch & Lomb variable scope, \$150. 714-525-0350. C
- Bicycle**, girl's 26", \$12. 213-426-4060. C
- Golf Clubs**, used, set of 4 woods, Spalding, \$5; golf cart, \$3. 213-375-4593. C
- Boat**, 1969 Sea Hunter, 35 h.p. Merc. out-board, trailer, skis, jackets, extinguisher, \$300. 213-679-6917. C
- Fiberglass Hardtop** for 1964 MG Midget, white, \$75. 213-327-4585. C
- Windows**, 8, 24"x36", wood frame, \$2 ea. 213-379-4517. C
- Surfboard**, 7'9" pintail, \$35. 213-545-5960. C
- Acreage**, approx. 5 acres, rugged & wooded river-front, property Mother Lode country, \$1,000 acre. 213-371-3171, 213-377-1990. C
- Bicycles**, 2, girls, 20" Schwinn Sting Ray; 3-speed 26" Sears, w/hand brakes, \$15 ea. 213-375-1685. C
- Lot**, in Brooktrails Park, nr. Willits, \$1,995 for equity and take over payments of \$54 mo. at 6 3/4% interest. 213-865-6887. C
- Boat**, 8' Sidney Sabot, formed filled, sails, car-top carrier, \$225. 213-398-5179. C
- Mini Bike**, 1968 3 1/2 h.p. Bonanza, 1 1/2 gal. gas tank, new rear whl. assy., other extras, \$100. 213-372-1691. C
- Seats**, fold-up bench type, fit most campers, \$15. 213-545-6719. C
- Land Camera**, Polaroid auto. 100, w/flash & carrying case, \$50. 213-645-6510. C
- Sailboat**, 13' centerboard sloop Romeo/Ghost, incl. dacron sails, oars, locks, bow lights & cartop carrier, \$325. 213-377-2355. C
- House**, new roof, paint, cpts. & dps., lge. kitchen & yard, fruit trees, \$21,950. 213-327-6373. C
- Headers**, Cyclone, & muffler, chrome, fits '61-'64 VW, \$25. 213-944-7666. C
- Aquarium**, Pemco 17-gal., stand, under gravel filter, \$25. 213-530-0545. C
- Mini Bike**, Hodaka, custom 9.8 h.p. Ace 100, 5-spd. trans., \$175. 213-378-1353. C
- Pups**, German shorthaired pointers, 6 wks. old, shots & A.K.C. papers, \$75. 805-526-6820. C
- Acreage**, 2 1/2 acres fronting on new Adelanto pvt. airport, \$75 dn., \$75 mo., \$7,500; 5 acres, Adelanto City, water & elec., \$100 dn., \$100 mo., \$10,000. 213-378-1026. C
- Organ**, Hammond, elec. chord, walnut spinet, \$250. 213-379-3801. C
- Mobile Home**, 1964 Summit, 3-bdrm., furn., awning, shed, skirting, must be moved, \$3,000. 213-634-6717. C
- Speaker**, 15" Woofer, with or w/out enclosure, \$20. 213-675-7397. C
- Saxophones**, alto, \$100; tenor, \$150. 213-423-1363. C
- Golf Clubs**, Terra Star, w/bag, used 6 mos., 4 wood, 7 irons, \$75. 213-376-5520. C

Familiar Sight on World's Airways



BOEING 747 wearing BOAC markings wings its way over water. Now monarch of the airways, the 747 has been ordered by 29 airlines. More than 135 superjets have now been delivered.

Rides and Riders

Rides Wanted

7:30 a.m. — 4:12 p.m.

Century & Eucalyptus, Inglewood. Vi Boddy, Aircraft ext. 4212, 213-677-6948.

Calle Mayor & Pacific Coast Hwy., Torrance. Mary Dennis, Aircraft ext. 6562, 213-375-5237.

8 a.m. — 4:42 p.m.

Euclid & McFadden, Garden Grove. Ken Hammond, Aircraft ext. 4241, 714-531-3927.

Wanted to Buy

Engine for GMC truck, 1963 3/4 ton 305 "E" only. 213-370-6896. D

Transmission and Rear-end, 1960 Sunbeam Alpine, must be in good condition, reasonable. 213-644-8073. D

CB Transceiver, 23 channel mobile. 213-349-5658. D

Carburetors, for 1961 Volvo, model 544. 805-495-8377. D

Tent Trailer, small. 213-379-5690. D

Rugs, old Navaho, blankets, jewelry, Pueblo pottery, Indian artifacts, prehistoric pottery, Southwest & California Indian baskets of good quality. 213-545-5045. D

Free (To Be Given Away)

Coon Hound, 2 yrs. old, wonderful disposition, had distemper & rabies shots, brn., blk., white markings, female, will give to anyone who has yard for her. 213-677-0533. F

Rentals Offered

Apartment, lg., 2-bdrm., lower deck, drapes, carpet, gar., adults, no pets, water & trash pd., \$155 mo. 213-323-0546. G

Cabin, Lake Arrowhead, north shore, 200 ft. from lake, private dock, \$120 one wk., \$200 two wks. 213-375-2255. G

Apartment, lg., 1-bdrm., 2 baths, subterranean gar., adult bldg., \$185 mo., Inglewood. 213-670-6084. G

House, near L.A. Int. Airport, 3-bdrm., 2 bath, 1 yr. lease, \$235. 213-346-7049. G

House, Bass Lake, \$150 wk., \$45 w/end. 213-374-3702. G

Cabin, Green Valley Lake, \$65 wk. 213-320-2002. G

Cabin, Moonridge, Big Bear Lake, 3-bdrm., 2 baths, f/place, completely furn., family only \$125 wk., \$50 w/end. 213-326-7232. G

Cabins, Lake Gregory & Crestline, make reservations early, sleeps 6, \$65 wk. 213-821-8150. G

Motor Home, 24', Islander, fully equipped, radio/stereo tape, 4000 W. gen., a/c, extra fuel tank, \$200 wk., 5c mile. 213-596-0024. G

Child Care

Baby Sitting, my home, Mon.-Fri., nr. Northrop. 213-644-7984. I

Personals

I wish to express my appreciation to everyone for their kindness and thoughtfulness during the illness and loss of my mother Zena Morris. THOLA FROMER. L

We wish to express our appreciation to all our friends at Northrop for the kindness shown during the passing of our mother & wife. LUTHER PARKER & CHILDREN, FLOY SCHEER, GORDON PARKER, LOWELL PARKER, MARLENE SEAMAN. L

For Sale or Trade

Tape Recorder, stereo, AM/FM stereo receiver, 2 spkr. cab. w/30W spkrs., \$450 or will trade for car or motorcycle of equal value. 213-532-6687. M

Lots, R-1, 2 residential, 100'x100' ea., Palm Springs, Whitewater Country Club area, all utils. in, paved streets, \$3,750 ea. or trade for Antelope Valley property. 213-634-8423. M

Long Quest for Degrees Ends for Two

No matter how long it takes to get a college diploma, it is worth the effort, according to two Electro-Mechanical Division men.

And they should know, for one took 19 years to get his and the other took 18.

The two men are Tony E. Dixon, Technical Publications, and Al Van Der Most, division safety administrator, both of whom were graduated from California State at Long Beach in June with degrees in Industrial Technology.

Mr. Dixon started junior college in 1952 and completed two years. Then after a 15-year lapse,

he resumed his studies two years ago to complete his degree. He finished with a high scholastic record, being named to the president's list.

Mr. Van Der Most began working for his degree in 1954 and proceeded, as he describes it "by fits and starts as I could squeeze out the time" with studies at Sacramento State, UCLA Extension, Fullerton Junior College and finally at California State at Long Beach.

NORTHROP NEWS

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No. 13

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EDITOR'S NOTEBOOK

We don't want to sound pompous on the subject, but apparently the sun never sets on Northrop News. We are reminded of this fact when we receive mail from some far corner of the world. Our latest correspondence comes from the shadow of old Bagdad and was written by Rex Patterson, a Northrop employee of Page Communications Engineers in Tehran, Iran.

Mr. Patterson read a March 17 News story about Jordan's King Hussein, an amateur radio buff, receiving a new Hallicrafters radio. An accompanying article reminded Northrop employees that similar equipment was available to them at reduced rates. Since Page, like Hallicrafters, is a Northrop subsidiary, Mr. Patterson wondered if he is entitled to such a discount.

Verda Campbell, the Electro-Mechanical Personnel Activities kingpin who serves as focal point for the sale of Hallicrafters equipment, passed Mr. Patterson's letter on to Hallicrafters for consideration.

Meanwhile, we'll add a reminder to all Northrop personnel that Hallicrafters radio equipment, in many models and configurations, is still available to them through their local Personnel Activities outlets. They really must be among the best bargains in the world or Mrs. Campbell wouldn't be getting inquiries from such distant points. That's logic, isn't it?

* * *

From time to time someone will tell us stories of unusual jobs, tasks or assignments carried out by Northrop employees as a part of their job. Such a story comes to mind with the news that Holmes and Narver, Inc., will relocate its headquarters into what had been the Electro-Mechanical Division's Building Y-3.

In the early 1950's, when Northrop first moved to Orange County, the site of the present Y-3 was occupied by a grove or farmhouse, once the control point for acres of citrus trees. Although Northrop owned the land, there were no pressing requirements at the time for it. So the original owner of the land stayed on in the house.

Paul Faranda, now Electro-Mechanical manager of Industrial Relations, was then working in Employment. To him fell the monthly task of collecting the rent for the farmhouse. Paul reports the task was a pleasant one. "The former owner would stop by for a chat and present his check. I would process it through accounting, then return the visit to present his receipt. It was all very proper and relaxing. We hated to see the old farmhouse go to make way for Y-3," Paul says.

IS IT NEWS?
CALL EXT. 4273
HAWTHORNE

Cost-Cutting Ideas in 747 Pay Off for Salas, Tracy

Two Ventura men involved in production of the Boeing 747 wing fairings have received awards of \$186 and \$147, respectively, in the Suggestion Awards Program.

Eli Salas Jr., who works in lamination, earned \$186 when he devised a template and suggested pre-cutting three-ply material for test panels instead of cutting and laying up the material separately.

Young Mr. Salas, whose father works in Shipping at Ventura,

suggested the idea for the vacuum press operation used to test materials which will be used in 747 panels.

Mike Tracy received awards of \$86 and \$61 for Boeing-related cost-cutters.

The large award came as the result of an idea calling for installation of honeycomb racks above lamination work stations. The idea saves time for laminators. The other award was for a suggestion to eliminate M-Day dates from Boeing Manufacturing Orders.

Makes It Flow

The Boeing M-Days are different from those used at Ventura. The difference was confusing and required excess paperwork. Now the system flows more smoothly.

Harold Schuman received a \$35 award for an idea which saves time and money in transporting MQM-74A and Chukar targets from the assembly area to the test area at Fort Conejo.

Others earning cash awards for money-saving ideas were Joe Tremblay, \$25, and Jim Kearney and Pat Meltzer, \$10 apiece.



Mr. Tracy



MONEY-SAVER
Eli Salas Jr. displays idea.

AT NOON HOUR

Ceramics Group Busy Again

One of the least-known Rec Club-sponsored clubs is the Arts and Crafts Club.

The group meets at each lunch hour in an area near the Contracts offices in the Engineering Building. Members work with ceramics under the direction of Peggy Walthuis, a spares follow-up clerk.

Mrs. Walthuis, who has a kiln and studio set-up in her home, donates her services to the Rec Club. "This is a great hobby and I just like to share my knowledge with other people so they become interested," she explained.

Expenses, which cover materials, are relatively nominal. Participation is also nominal, but many more Venturans are welcome to learn the rewards of ceramics, Mrs. Walthuis said.

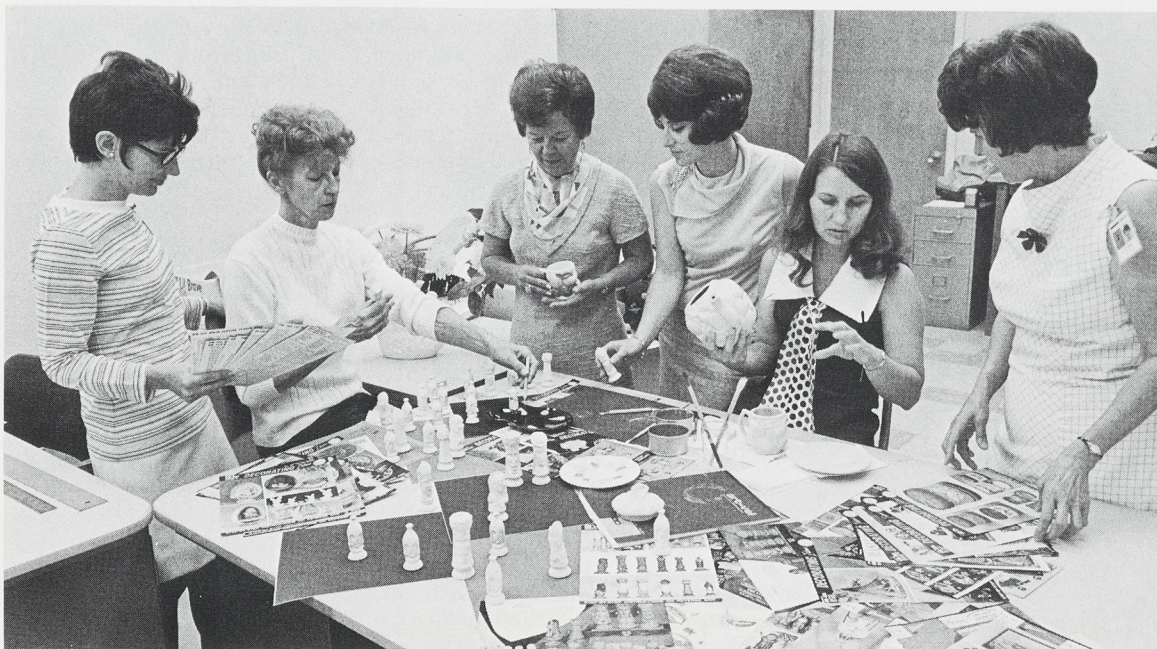
The group is making ceramic chess sets, fruit cups, statues, steins, dishes, ashtrays and many other things. "You name it and we can just about make it with molds in ceramics," said Mrs. Walthuis.

Modest Start

She started working with ceramics three years ago on a very small budget — "pennies and nickels, actually." As her interest grew so did her investment. Today she passes on the benefits of that interest to Venturans.

Because she is able to buy materials in large quantities, Mrs. Walthuis (and the Rec Club) make them available to participants at "below scale" costs.

She invites any interested personnel to contact her at ext. 341 or 342 for further information.



CERAMIC WORK AT LUNCH HOUR

From left, Adrienne Morse, instructor Peggy Walthuis, Ruth Weiss, Macey Zarit, Pat Rouse and Marge Raine.



TO SING FOR MANAGEMENT CLUB
Members of the exuberant Grand Land Singers photographed on Capitol steps.

Concert Tickets Are Now Available

Tickets for the upcoming Grand Land Singers performance are now available to members of the Ventura Division Management Club, sponsors of the event.

Each active Management Club member is entitled to \$4 worth of free tickets for the concert. Based on \$1 for adults and 50 cents for youngsters under 18, Management Club members can put together any combination of tickets totaling \$4.

Concert tickets can be obtained from Genie Cross or Pat Schreiner in the Industrial Relations office. Club members are urged to obtain their tickets before July 16.

"We have 800 prime seats set aside for Management Club members and Ventura personnel and another 800 earmarked for the public," noted Frank Lund, coordinator of the concert for the Management Club.

Some of the 800 tickets earmarked for Management Club members also will be available to

Ventura personnel who are not club members. Non-members will be able to purchase the choice seats at the public prices (\$1 for adults and 50 cents for children) before they go on sale at various public outlets.

"If the club members and other Venturans aren't able to obtain their tickets before July 16 then we will reluctantly have to release them for public sale," Mr. Lund explained.

Although a few contingency seats may be available for Management Club members who are unable to obtain their tickets by July 16, the Management Club is obligated to sell as many tickets as possible to help defray the

costs of having the 100-voice Grand Land Singers appear.

"This is an outstanding group of young people" said Mr. Lund. "Their program, 'Discover America', is filled with patriotic songs, folk songs and related material which provides a rewarding evening of entertainment."

The Grand Land Singers are well-known throughout the country.

The group of Cerritos College young adults has performed at the Hollywood Bowl, Los Angeles Music Center, Disneyland, Anaheim Convention Center and before 250,000 people at the Cherry Blossom Festival in Washington, D.C.

SERVICE PINS—22 Get Them

(Continued from page 1)

and Maintenance.

Also, Duane Rockwell and Ken Erwin of 747 Trim and Drill; Aldean Holman, KD2R5

Final Assembly; Carol Rundgren, R&D Estimating; and Ray Yeates, the Ventura Division's technical representative on the Mark 30 in Hawaii.

VENTURA REC CLUB ROUND-UP

Members of the Ventura Division Rod and Gun Club are getting ready for the annual deep pit venison dinner which will take place Saturday evening, July 24, at the Chatsworth Women's Club.

The venison is being provided by members Paul Prychoda and John Lawrence. As lucky hunters last year they won an opportunity to go on a Rod and Gun Club-sponsored deer hunt in Utah. As provided in the rules, they are

sharing their spoils with other club members.

Tickets for the full trimmings dinner cost \$3 per person. They can be obtained from the following Rod and Gun Club area boosters:

Bill Schultz, Manufacturing; Dick Small, Engineering; Martha Cleous, Administration-Second Floor; and Marian Robinson, Administration-First Floor.



Ventura personnel and their families should put a red circle around Sunday, Sept. 12 on their calendars.

That is the date of the annual Ventura Division Rec Club-sponsored Family Picnic. This year's picnic will be at the Calamigos Star C Ranch in the Malibu Mountains.

More details of the event will be available in subsequent issues of the Northrop News.



There's a close battle going on as Northrop Twilight League golfers go into the second half of league play at the Sunset Hills course in Thousand Oaks each week.

The team of Jack Moore and Paul Scott is just one stroke ahead of Bill Kearney and John Wells, 411-412, in the Wednesday evening tourneys.

An equally tight fight is being waged for third place with Wes Steyer and John Breneman teaming up for a 421 with Mr. and Mrs. Jack Bunnell one stroke back at 422.

Right behind the Bunnells are Jim Goff and Ted Randolph, 429, followed by Tom Boyce and Andy Tyszkiewicz, 430, Jack Christian and Sue Saulsbery, 432, and Bill Walstrum and Joe Sliak, 433.

Others, in order, are Ivan Blum and Marty Nemeroff, Ralph James and Bob Legg, Grady Means and Paul Wood, and Mr. and Mrs. Oral Piercey.



The next best thing to hunting quail will be available to Ventura Division personnel on Saturday, July 24, when the Rod and Gun Club conducts a "quail walk" at Fort Conejo at Ventura.

Participants will walk down a woodland path with shotguns ready. Clay pigeons will be automatically fired from spring-loaded traps offering "hunters" an opportunity to keep their skills and reflexes sharp.

Cost for the 9 a.m. to 3 p.m. event is \$1.50 per person. Participants should provide their own shotguns and shells. Prizes will be awarded. Contact John Rowe or Hal Hunsberger if you will attend.

NORTHROP NEWS

VENTURA DIVISION

Northrop Corporation, Los Angeles, California

Vol. 29, No. 14

July 21, 1971

Navy Awards \$4.2 Million Contract For Continued Production of MK 30

The Ventura Division has been awarded a \$4.2 million Navy contract for continued production of the Mark 30 mobile anti-submarine warfare (ASW) target vehicle.

This second production contract, awarded by the Naval Ordnance Systems Command, includes ancillary support equipment, special test equipment, spare parts, batteries and program management.

The versatile Mark 30 target was designed to Navy specifications for storage and launching as a standard torpedo, either from surface ships or submarines.

It is used to train ASW crews in locating and tracking a target, and in placing a firing vessel in proper position to launch a torpedo against it. The Mk 30 was used in an operational fleet exercise for the first time last summer.

Filling a Need

Until the Mk 30 became operational, real submarines were used as targets. This, of course, limited the actual operational readiness of fleet units inasmuch as submarines weren't often available for the purpose and were costly to use when they were.

The Mk 30 can be used in conjunction with all ships, submarines and helicopters equipped with sonar gear.

It can be programmed in advance to move in any direction, at various depths and speeds. As a result, the plane, ship or sub

which is to hunt down the simulated submarine must meet every situation and condition which could be expected in hunting a real submarine.

Not only is it now unnecessary to have a real submarine

for ASW exercises, but the Mk 30 can be used with a computerized weapons tracking system which enables ASW fleet units to test and evaluate tactics and train crews without actually firing weapons.

New Surveillance Drone Now Marketed in Europe

A surveillance version of the Northrop MQM-74A target drone is now being marketed in Europe by Meteor SPA, an Italian aircraft and electronics firm which has the co-production and sales agreement with the Ventura Division on this vehicle.

Known as the Gufo Tactical Surveillance System ("gufo" means "owl" in Italian), the drone is designed for the European market. A previous Northrop-built drone, SD-1, was the first operational surveillance drone system utilized by the U.S. Army.

This system was developed from a conversion of the prop driven OQ-19 target and has been utilized by several foreign countries, including Italy.

Two-Truck System

The Gufo drone system includes two launching trucks: One with a remote control tracking and guidance center and the other contains hardware required for interpreting transmission data or processing film.

In operation, the drone is programmed prior to launch. Special onboard gear resists electronic jamming techniques and small radar reflectivity makes the drone intentionally difficult to observe.

Payload carried in the half-Northrop and half-European-produced system can include infra-red sensors, cameras and data transmission equipment.

The Owl drone can operate at night and, to illuminate scenes for its cameras, can carry 14 wing tip flares which ignite at predetermined intervals.

On completion of the mission,

the drone is automatically guided back to its landing site where it is recovered by parachute and readied for re-use.

The drone is capable of carrying out approximately one hour of continued surveillance.

Northrop and Meteor SPA have been associated for the past several years beginning with the co-production of the KD2R5 for Italy, where it is identified as the NVM1. In a new agreement a similar arrangement has been reached on the Chukar target version which will be designated NVM2 in Italy.

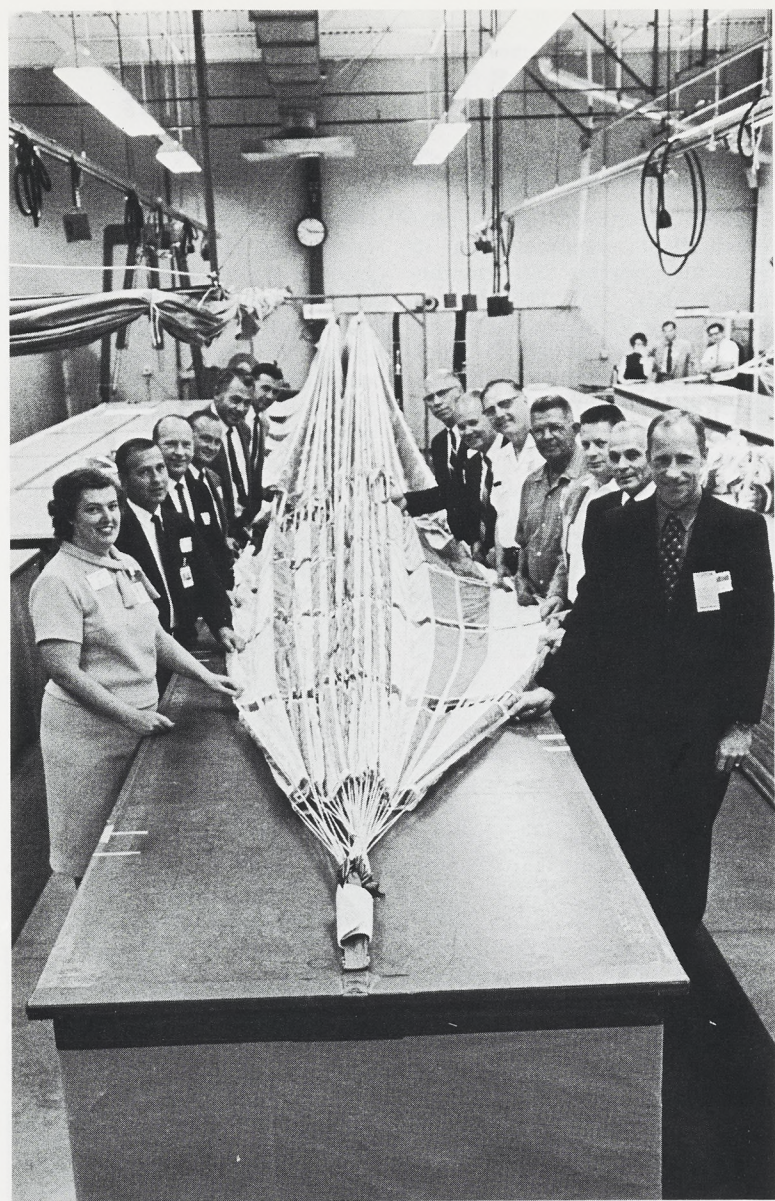
STUDY PROGRAMS OCCUPY TIME OF TWO EXECUTIVES

Two Ventura Division executives are spending a good deal of the summer at school.

Walter Sternadel, vice president of Financial Management, is participating in the June 20 to Aug. 12 Stanford Executive Program at Stanford University.

John Evans, vice president of Production Operations, is completing the second half of the 16-week Harvard Advanced Management Program at Harvard University. Mr. Evans did the first eight weeks last year. He will return to Ventura the first week in August.

Mr. Sternadel's job is being handled on a rotation basis by Charles Hass, Les Hudson and Jewell Plummer. Lauren Persons is handling Mr. Evans' duties in his absence.



WHEN APOLLO 15 ASTRONAUT VISITED
Cdr. Worden, right, posed in Paralab with Snoopy pin recipients.

ASTRONAUT VISITED

Apollo 15 Launches Monday, Has Added Ventura Interest

Although Project Apollo interest seems to have waned in some circles, it will enjoy renewed enthusiasm next week for Ventura personnel with the launch of Apollo 15 on Monday.

That interest will reach a peak on Aug. 7, 12 days later, when the Apollo 15 spacecraft returns to earth under the protection of the Ventura Division-produced Apollo Earth Landing System.

Contributing to the excitement at Ventura will be the knowledge that one of the astronauts, Command Module Pilot Alfred M. Worden, personally toured the division in May 1969, and inspected the Paralab where the system is produced.

He presented Snoopy pins, symbolic of outstanding service in the space program, to 12 Venturans.

Another Apollo astronaut, Richard Gordon, played a similar role at Ventura about a year earlier. Astronaut Gordon is a member of the Apollo 15 back-up crew. He was also the command module pilot in the Apollo 12 moon mission.

Astronaut Worden will be orbiting the moon while his teammates James Irwin and David

Scott land on the lunar surface.

These astronauts will mark a new "space first" with the lunar rover vehicle (LRV). The unique vehicle, first of its kind on the moon, will carry the pair on three sorties covering nearly 25 miles. The longest will take them about five miles from the lunar module.

The LRV weighs about 500 pounds, is powered by special batteries and can be operated by either astronaut from the controls located between the two side-by-side seats.

The vehicle is a four-wheel drive model which also features a four-wheel steering system. It is equipped with a navigation system. A television camera will relay pictures of the lunar module lift-off when the LRV is left behind.

Apollo 15 will represent at least two other major "firsts." The 12-day mission will be the longest yet for U.S. astronauts and represent the longest time—37 hours—ever spent by men on the moon.

Another interesting highlight lies in the return.

Unlike their predecessors, Apollo 15 astronauts will not be subjected to quarantine when they return. The return, incidentally, will mark the 25th exercise of a Ventura Division-produced landing system with U.S. space men.

SCIENCE GROUP ELECTS MICKEY

Fred Mickey, an engineer in Aeronautical Target Systems at the Ventura Division, has been elected president of the Ventura Branch of the Scientific Research Society of America.

Karen DeMario Wins Statewide Honor in Music

The 12-year-old daughter of a Ventura Division materials engineer was recently honored by the Music Teachers Assn. of California.

Karen DeMario, daughter of Bill DeMario, was one of 14 young people selected from nearly 200 contestants statewide to perform before the annual MTAC convention at Palo Alto on June 30.

The competition was based on original compositions by the young people. Karen, a piano student for six years, was honored for her work entitled, "Andante."

Karen, whose music preference leans to Bach and Beethoven, has written several compositions but this is the first to merit special distinction.

Karen's older sister, Nancy, 18, has been playing the piano for a dozen years. Recently graduated from Thousand Oaks High School, Nancy will be a music major at Valley State College in the fall.

Is the whole family musically inclined? "Not at all," laughs Mr. DeMario. "Neither my wife nor I play a note," he says.

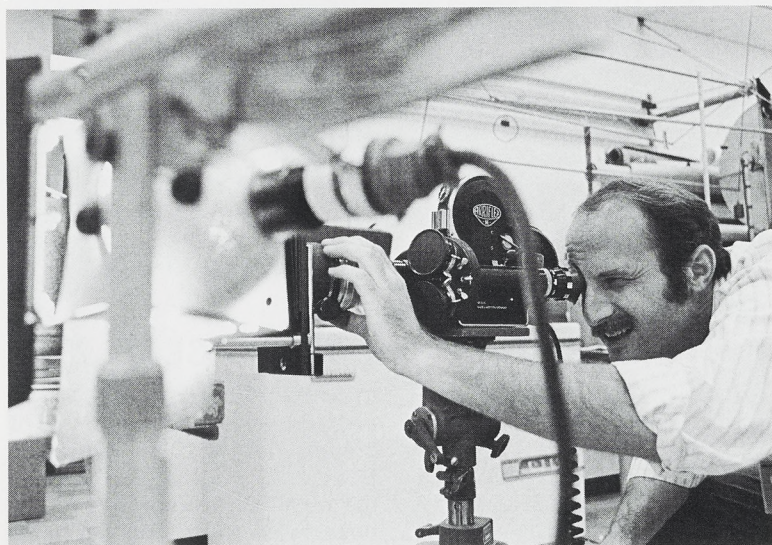
Their two sons, Bill, 14, and Rusty, 10, have shown a mild interest in the trumpet. "But they don't have near the enthusiasm for music that the girls do," he noted.

ASTRONAUTS CALL SHIPS 'FALCON' AND 'ENDEAVOR'

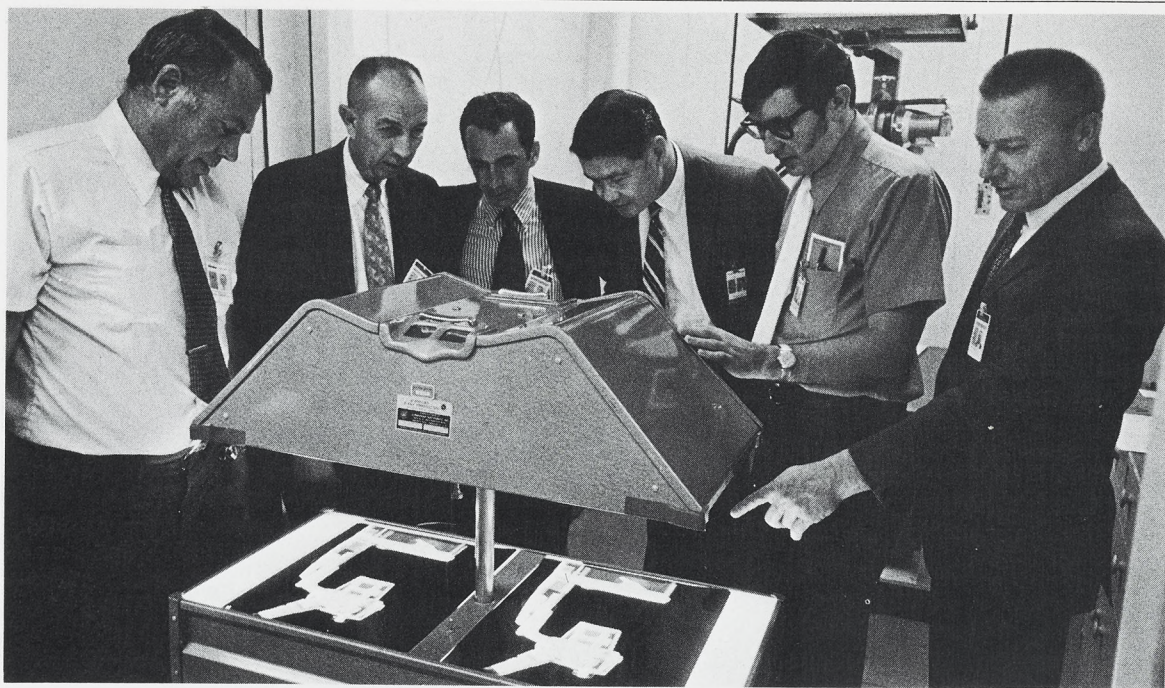
Astronaut Alfred Worden will pilot the Apollo 15 command module which the astronauts have named Endeavor, after Capt. James Cook's ship which explored the Pacific.

The three Air Force officers selected Falcon, mascot of the U.S. Air Force Academy, as the nickname for their lunar module.

On The Job . . .



TOM SMALLEY has been a cinematographer at the Ventura Division for more than five years. One of his motion pictures, "The Last Five Miles Home," based on the Apollo Earth Landing System, won the Best Film award from the Industrial Film Producers Assn. in 1966. Mr. Smalley is photographed copying 35 mm. slides onto 16 mm. motion picture film for a new movie on the MQM-74A aerial target.



NDT GROUP WITH 3-D X-RAY AT VENTURA
From left, Bud Lindsay, Sherman Allen, Phil Perea, Ed Regalado, Bill Glass and Dick Gibbs.

SHARING KNOWLEDGE, TALENTS

This Test Committee Serves All Northrop

Eleven Northrop Quality Control men from five Southern California facilities and another in Massachusetts have the same responsibilities and problems.

Since 11 heads are better than one, they formed a Corporate Non-Destructive Test Coordination Committee four years ago to pool knowledge, talents and abilities in solving those problems.

The group is currently chaired by Sherman Allen, of the Electronics Division's Navigation Department in Hawthorne.

Bill Glass, of the Ventura Division, is a past-chairman and so is Eduardo Regalado of the Aircraft Division. Mr. Regalado and another Aircraft member, Roy Wolford, are past-presidents of the Los Angeles Section of the Society For Non-Destructive Testing.

Other members of the Nor-

throp group are Walter Gray and Richard Gibbs of the Electronics Division at Palos Verdes, Phil Perea of the Electronics Division in Hawthorne and N.E. (Bud) Lindsay, Ventura Division.

From All Units

Also, Lee Mueller and Ed Schwarze of the Electro-Mechanical Division and Allen Walters of the Electronics Division's Precision Products Department in Norwood, Mass. Mr. Walters' contributions and membership benefits are limited to correspondence.

The NDT group has compiled a catalog, for example, of various testing machines, their suppliers and availabilities.

"With the diversity of Northrop products it is not uncommon for one division to require testing on a material which another division is familiar with,"

explained Mr. Glass.

By referring to the catalog the curious man can frequently find what material best responds to which equipment and techniques and benefit from the other division's experience.

"One of the members took advantage of this recently," Mr. Glass said. "Within three days he had the necessary machinery located where he needed it. This would have taken much, much longer without the catalog."

Keeping Informed

Members discuss interdivisional NDT methods, techniques, problems, and possible solutions. They also maintain an equipment inventory and keep members informed of industry activities by circulating pertinent papers.

The NDT group is under the direction of the Corporate Quality Control Coordination Committee. The QC group's membership is composed of all divisional QC managers.

Here's a Chance to Have Your Favorite Recipe Published; Aid Needy Families

Would you like to have your favorite recipe published in a cookbook? If so, jot it down on paper with your name and division and send it through company mail to: COOKBOOK, 170/62.

Upon receipt it will be forwarded to a group of women employees in the Electronics Division who plan to publish a Northrop Cookbook this fall for the benefit of underprivileged families.

According to Doris Martin, originator of the unique idea, the cookbook will contain only those recipes submitted by Northrop employees and their families.

"This is one way in which nearly all employees in the company can participate in a total effort to help make Christmastime a happy occasion for the less fortunate," Mrs. Martin said.

All proceeds from the sale of the cookbook, which will be sold for a nominal price through Personnel Activities outlets, will be distributed through the Northrop Needy Family program or will be used for other worthwhile NRC activities at each division where books are sold.

The cookbook will contain chapters on meats, vegetables, salads, desserts, canning, beverages, foreign and exotic foods, weights and measures, and cooking shortcuts.

In addition, special sections will be devoted to party preparations, table decorations, family menus, and household hints, such as stain removing methods.

"We need the help of all employees if the Northrop Cookbook is to be successful," Mrs. Martin said. "Every recipe published will be credited to the donor, so please submit your ideas as soon as possible."

Mrs. Martin is being assisted in the cookbook project by Paula Gardner and Ceil Kenny.

MAGIC MOUNTAIN NIGHT IS SEPT. 25

Another family entertainment bargain, this one at a new and fascinating recreation facility, is on tap for all Northrop Corporation employees, thanks to the efforts of NRC.

Magic Mountain, located at Valencia, has been reserved for Northrop families exclusively between 7 p.m. and 1 a.m. on Sept. 25, a Saturday.

Tickets will sell for \$4 each.

They are good for all ages. However, youngsters under the age of 2 years will not require tickets. Each ticket is good for unlimited use of all facilities, rides, attractions and includes free parking.

NRC ticket outlets at all Northrop facilities will have tickets available in the near future. Special posters heralding the event will be distributed to all divisions and facilities when tickets arrive.

COLEMAN-LED EXPERIMENT

Youth Show Interest in World Affairs

What would schools be like if students could pick their own classes? All frivolity and football? Not if an experiment conducted at Troy High School, Fullerton, is any indication.

Today's youth are interested in the world around them.

The idea of letting students decide what they want to learn was the work of Doug Coleman, 17, son of Northrop's Ira Coleman.

Similar experiments have been held at other schools in the nation, but this is the first time it has been tried locally. The program is known as LEARN (Learning Experiences Are Relevant Now).

Doug, assisted by four other students, planned the entire program. They surveyed the student

body to determine just what subjects the students wanted to learn. They received 650 individual subjects which were screened down to 319.

Their next problem was to find instructors. Many of the regular teachers turned out to have expertise in a wide variety of subjects. One science teacher was an expert in outdoor cooking. Other teachers were recruited from other schools. And lecturers and instructors were recruited from government and civic organizations to help out.

Many Suggestions

Among the classes were such trivialities as yo-yo spinning and graffiti writing, but others were meaningful in terms of modern life. They had lecturers come in to tell them about the SST and the real meaning of the controversy over supersonic transport.

Other overflow classes were conducted by the Fullerton Police Department, the FBI and the John Birch Society. Also extremely popular was a class on the dangers of narcotics.

"While it was no surprise," Doug reports, "to find the motorcycling class filled, it was surprising to find the Israeli dancing class overflowing."

Equally popular with the class

manship of the Educational Subcommittee. His work will involve informing the city council and the citizens of Yorba Linda on the results of ecological programs. He also will assist in encouraging community support for the council's environmental programs.

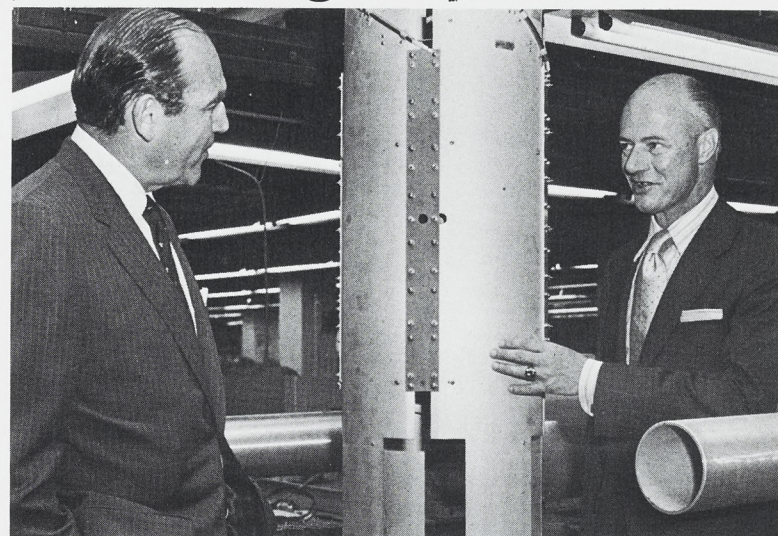
Dr. Tooley's subcommittee will be mainly concerned with studying the environmental effect of petroleum operations in the Yorba Linda area and their impact upon the community.

Mr. Foulds' work will be in the field of water quality, and determining how and what can be done to insure continued unpolluted water to the city. He is also working on the problem of water resource management.

Mr. Wedaa said the addition of Dr. Simecka, Dr. Tooley and Mr. Foulds to the committee would be a decided asset to the community.

Dr. Simecka accepted chair-

Getting Acquainted



HARRISON VAN AKEN, left, Northrop vice president and Hallicrafters president, views products with Ken Miller, Wilcox Electric, Inc. vice president and general manager. Northrop acquired Wilcox and World Wide Wilcox, Inc., from American Standard. It will operate the two as a subsidiary reporting organizationally to Mr. Van Aken. Wilcox employees were briefed on Northrop Corporation in a series of meetings at Kansas City and McLean, Va.

in boating were tours to local industries where students could get ideas about future careers. One of these was to radio station KEZY and another was to Fairview Hospital.

Doug also reports that only one of the 319 selected classes had to be dropped. The glass blowing class, which drew 180 applicants, couldn't find a qualified instructor.

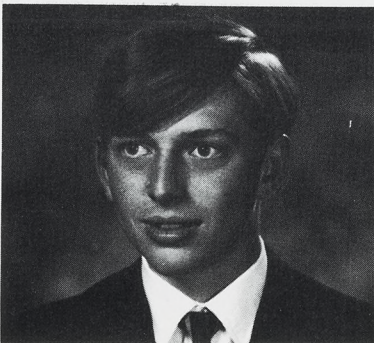
The experiment was conducted for three days and all classes were mini-classes that could be compressed into this time. Results of the experiment are being evaluated to see what can be done to incorporate more student desires into curriculums.

NEW FORMAT

Northrop News will introduce a new publication format next month with Wednesday, Aug. 18, set as distribution date for the issue.

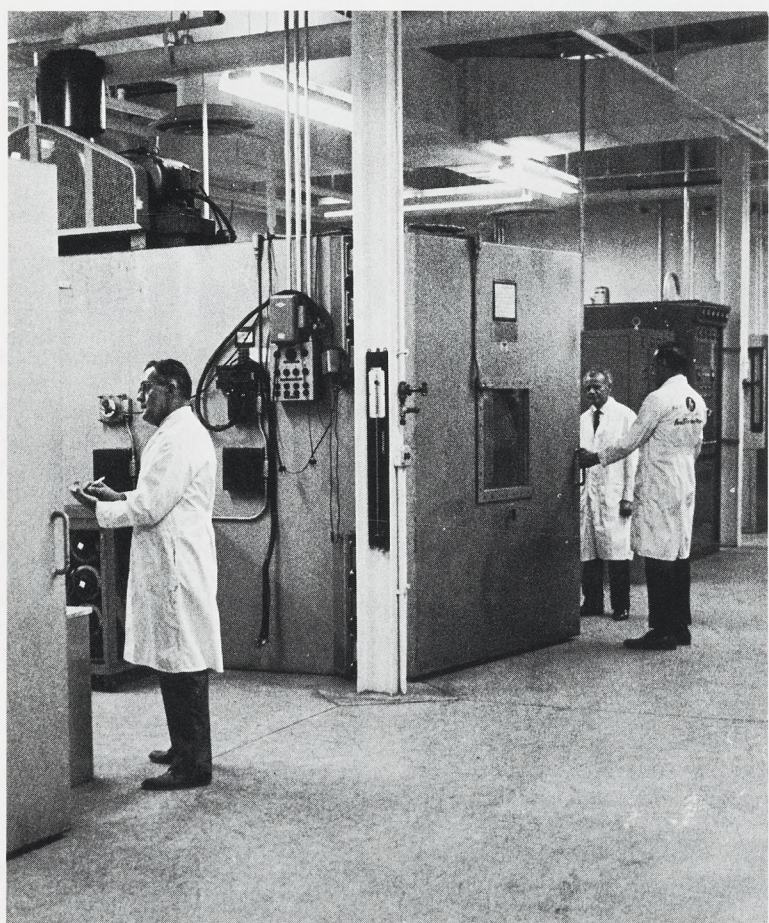
Subsequent distributions will follow on the third Wednesday of each month.

News tips will be welcomed at all times. Classified ads will be accepted on the first working day of each month through noon on the second Wednesday of each month.

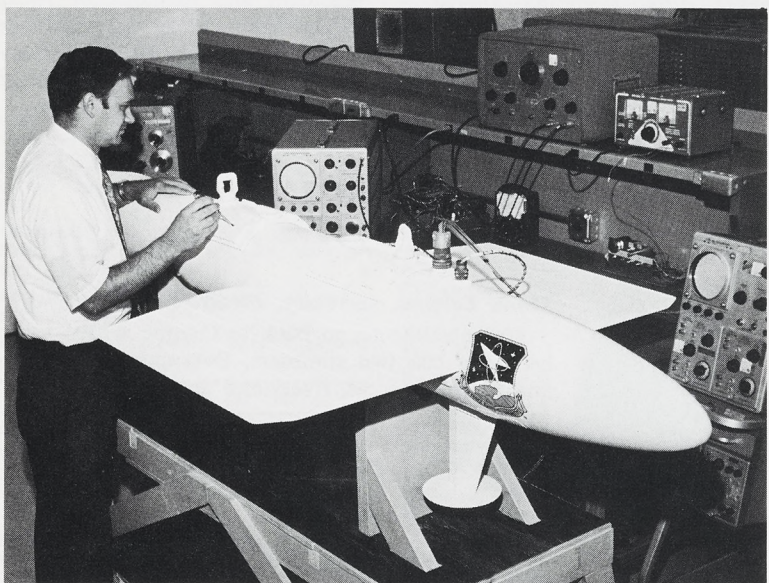


Doug Coleman

A Photoscope Visit To Hallicrafters



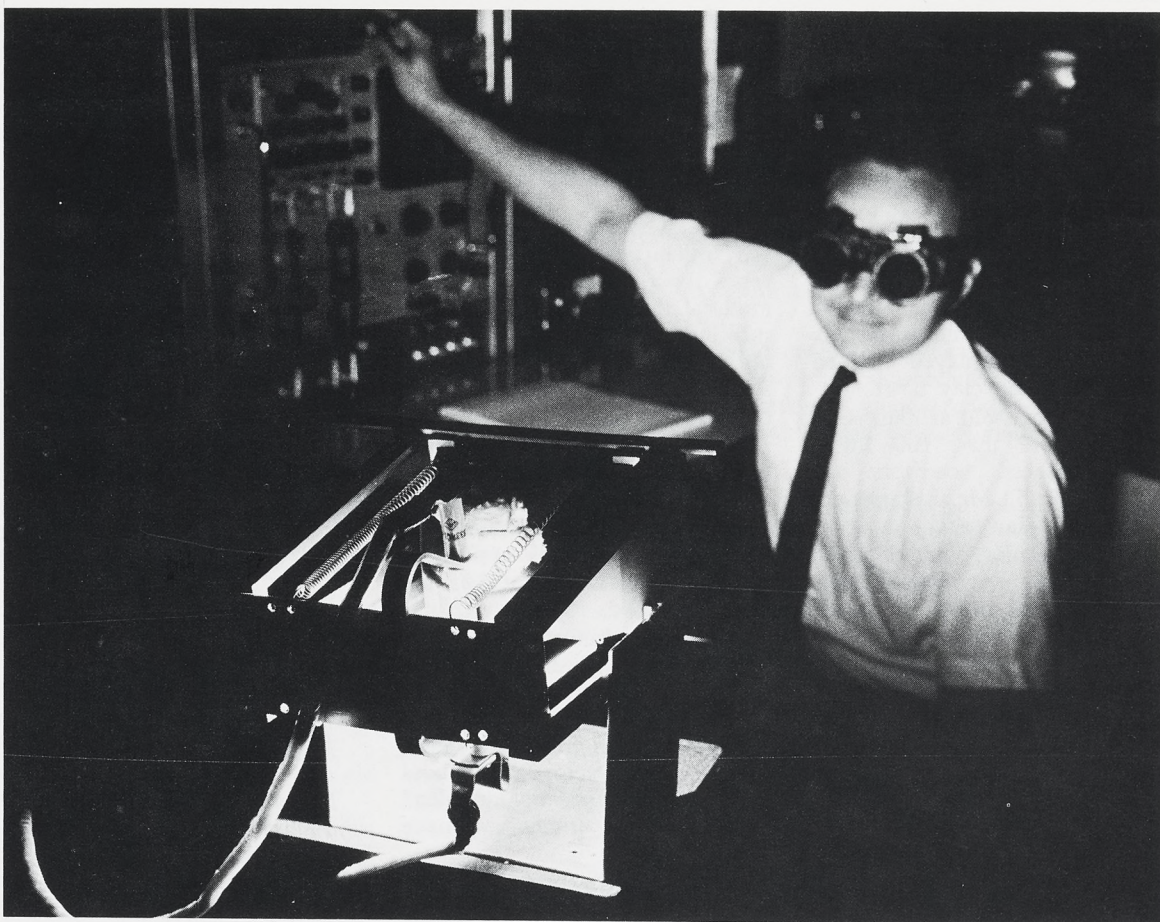
ENVIRONMENTAL LABORATORY is dependable proving ground for testing Hallicrafters products under all environmental extremes—such as high and low temperatures—altitude—vibration—salt spray—high humidity and shock conditions.



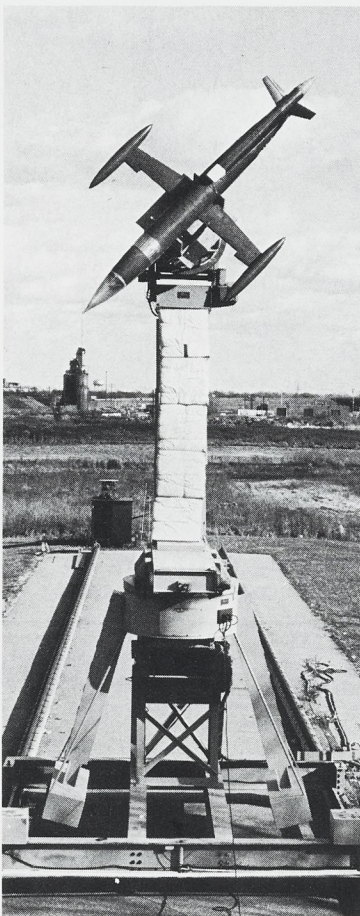
FEASIBILITY MODEL of electronic countermeasures pod for SCAD program is given response check by Roy Powers, senior engineer, Defense Systems Division.



HALLICRAFTERS ADMINISTRATIVE headquarters and research facility is located in Rolling Meadows, Ill., a suburb of Chicago. The Northrop subsidiary also has a manufacturing plant in El Paso, Tex.



ELECTRONICS TECHNOLOGY, complemented by infrared research at Hallicrafters has led to significant achievements in the field of defense countermeasures equipment. These devices detect and disrupt hostile electronic activities, such as radar, communications and missile guidance systems.



TARGET DRONE, radio controlled unit made by Northrop's Ventura Division, undergoes tests on outdoor Antenna Radiation Pattern Test Range at Hallicrafters' Rolling Meadows facility, which also includes an indoor anechoic chamber range for all-weather testing.



HALLICRAFTERS LIBRARY, along with a Master Records section, maintains classified documents and provides instant data retrieval from microfilm. All technical information is stored on 16mm film and 35mm aperture cards.



JOAN PIAZZA uses ultrasonic aluminum wire bonder in Thick Film Laboratory where low cost hybrid assemblies are produced using micro-miniaturization techniques.

Jack Bishop's Collection Includes Indian Relics That Are 800 Years Old

"An Indian woman drew these designs at least three hundred years before Columbus discovered America," said Jack Bishop, Aircraft Division industrial visualizer, as he displayed an intricately decorated clay bowl.

The 800-year-old artifact is but one of more than 100 Indian bowls, baskets, beadwork and other articles in Mr. Bishop's collection of Indian relics.

This particular bowl originally was found in northeast Arizona and had been made by pueblo culture Indians known to the Navajos, who displaced them, as "Anasazi" or — in Navajo language — "The Ancient Ones."

Mr. Bishop began collecting Indian relics because of his interest in the Old West. Then as an artist his eye was struck by the beautiful designs on Indian pottery and woven into their basketwork.

He was intrigued because all of these designs were done free-hand without patterns. "I got my first basket," he recalled, "at an auction. It was a rather poor specimen, but I was thrilled simply because it was Indian and old."

Since then he has added many choice specimens to his collection. Oddly, although he collects Indian artifacts, he seldom obtains them from Indians. Many come from estates and private collections. Often he has to buy entire collections just to get a few pieces he wants. The rest he then has to sell himself.

It takes quite a bit of detective work to run down collections. Once at an Arizona trading post, someone had told him of a woman who had stopped there and mentioned her collection of baskets. Her name was unknown but she had mentioned the city she lived in. Mr. Bishop set out in pursuit in hope that she might have some extra items she would sell. This hunt is still going on, but as yet unsuccessful.

AIAA Holding Free Workshops In Southland

The Los Angeles Section of the American Institute of Aeronautics and Astronautics is presently conducting free workshops for professional employment at various locations in the Southland.

The workshops, according to Donald M. Stone, of the Western section, are designed to assist the engineer and scientist assess his career situation and conduct an effective job search if required.

Participants are divided into small working groups under the direction of a trained counselor. Each person is able to have his resume and letter critiqued and undertakes a "mock" interview.

"These workshops," said Mr. Stone, "are offered free of charge. They are open to all professionals regardless of professional society affiliation or employment status."

Reservations can be made by dialing any of the following telephone answering service numbers in your area:

South Bay or San Fernando Valley (213) 322-5746; San Gabriel Valley, (213) 331-6347; Orange County, (714) 543-5552; San Bernardino, (714) 888-5286.

Once it was possible to go to old Indian grounds and dig up relics. It is difficult to find good material this way anymore. Most turn out to be broken. Also, many old Indian burial sites are on Federal land and digging is forbidden these days.

A major hazard of collecting is the large amount of fakes on the market today, Mr. Bishop reported. Many of these have been artificially aged. This applies to pottery. Baskets cannot be successfully faked.

Part of the fun of collecting is hunting and finding valuable pieces for one's collection, but Mr. Bishop also reports that there is just as much enjoyment in what the collector learns about his collection and the long-dead people who originally made them.

"Every day you learn something new," he said. "Your learning — and enjoyment — never end."



JACK BISHOP DISCUSSES INDIAN ARTIFACTS
Bowl he is showing News Staffer Ivy Edmonds is 800 years old.



Bruce Titus



Terry Titus



Sgt. Dan Titus

TOP-NOTCH GOLFERS

Andy Titus Fathers Trio of Champions

The son of an Aircraft Division employee who attended Pepperdine University on an athletic scholarship is poised to work toward a graduate degree there on an academic scholarship.

The young man is Terry Titus,

son of Andy Titus, a cost estimator in Pricing and a 22-year Northrop veteran.

Terry completed the school's 1971 winter trimester on the dean's list and was named to the scholastic honors list for achieving a perfect 4.0 grade point average during the term.

He is a senior history major who plans to graduate in August. Currently, he serves as a graduate assistant in the history department.

Terry is also Pepperdine's top-ranked golfer for the year. He has attended school on a golf scholarship. For two years he was a member of a champion golf team at El Camino and also active in gymnastics. Terry also excelled in golf at Leuzinger High.

Between his El Camino and Pepperdine schooling, Terry took time out for active Naval Reserve duty, spending almost a year aboard a destroyer in the Vietnam area.

Mr. Titus has three sons, each a top-notch golfer.

The oldest, Dan, is a sergeant in the U.S. Army, presently serving his second tour of duty in Vietnam. He played on champion golf teams for four years at Leuzinger and two years at El Camino.

A younger brother, Bruce, is now in his second year at USC where he is attending school on a golf scholarship. Bruce was the 1969 California Junior Golf champion.

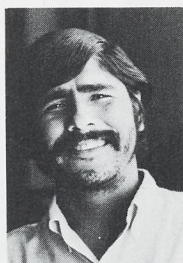
MARY PASS IS DESIGNATED CPS

Mary Pass, executive secretary in Northrop Corporate Laboratories, has successfully completed all requirements for designation as a Certified Professional Secretary.

Miss Pass, a five-year Northrop veteran, serves as secretary to Dr. Walter E. Crandall, Northrop vice president and manager of NCL.

The examination is given once a year by the Institute for Certifying Secretaries, a department of the National Secretaries Assn.

WE ASKED THEM — Where Are You Going on Your Vacation This Year?



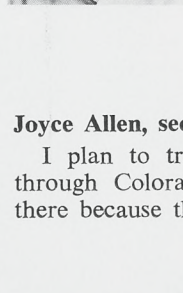
J. E. Diaz, heat treat man, Electro-Mechanical:

I am just going to take off for parts unknown somewhere in the United States. I never plan a vacation. I just go.



Mona Belcher, secretary, Electro-Mechanical:

I would like to go back to Oregon where I've been the last two summers. Everything is green and there are trees, rivers and mountains and it's so pretty.



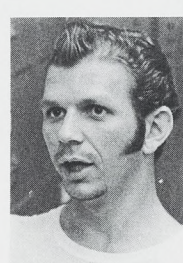
Joyce Allen, secretary, Electronics:

I plan to travel to the Grand Canyon and through Colorado. I've always wanted to visit there because the area has many historic sites.



Jack Hunden, administrative accountant, Electronics:

I'm going to England next month on the NRC charter flight. I also plan to make side trips to Belgium, The Netherlands and Luxembourg.



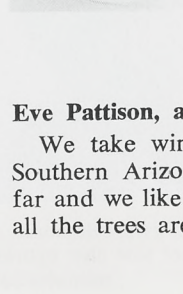
Mike Ferjo, Tool Accountability, Ventura:

I'm going to drive down to Mazatlan for a week. We'll charter a boat and fish for marlin and sailfish. Then probably drive on over to Mexico City. A friend and I made the same trip two years ago and we're looking forward to doing it again.



Pat Schreiner, Employee Relations assistant, Ventura:

I'm driving to San Francisco with my parents and my daughter. My brother lives there and we'll visit him and other people we know from when we lived there. I guess after the trip I'll spend the rest of my vacation resting and relaxing at home.



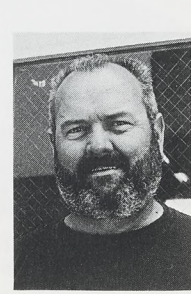
Eve Pattison, administrative aide, Aircraft:

We take winter vacations. We always go to Southern Arizona to a dude ranch. It isn't too far and we like the wide open spaces, horses and all the trees are pretty and green.



Bob Curran, terminal dispatcher, Aircraft:

My wife and I are going to spend a week at our cabin in the mountains at Crestline just resting and relaxing.



Classified

Classified ad service is provided free of charge to all Northrop personnel. Ads for agencies, commercial enterprises and private businesses are not accepted. The Northrop News reserves the right to edit or omit ads. Ads are limited to two items per person per issue; each category to be submitted on separate form. Deadline is noon Wednesday, one week before publication.

Automobiles For Sale

- Pickup**, 1965 Jeep, twin fuel tanks, other extras, & cabover camper, 8', intercom, ice box, stove, 20 gals. water, sleeps 4, \$1,600. 213-547-9329. A
- Volkswagen**, 1966 bus, 9-pass., 23,000 mi. on new eng., new brakes, \$900. 213-421-1300. A
- Oldsmobile**, 1965 Cutlass convt., 1-owner, p/s, new tires & top, \$700. 213-377-4018. A
- Datsun 1600**, 1966, convt., mod. SPL 311, \$950. 213-633-3993. A
- Volvo**, 1964, 62,000 mi., \$395. 213-371-3479. A
- Opel Rallye**, 1968, 102 h.p., a/c, \$1,100. 213-454-5988. A
- Volvo P1800**, 1965, new paint, sport cpe., 4-spd. & o.d., \$1,600. 213-325-5705. A
- Chevrolet**, 1962 Nova II convt., p/s, \$295. 213-377-4251. A
- Volkswagen**, 1968 Fastback, \$1,200. 213-893-9606. A
- Falcon**, 1966, 4-dr., stick, 6-cyl., \$525. 714-639-2487. A
- Karmann Ghia**, 1958, '62 eng., needs some work, \$250. 213-324-2690. A
- Station Wagon**, 1960 Oldsmobile, 9-pass., near new tires & trans., 84,000 mi., \$325. 213-377-1231. A
- Oldsmobile**, 1968 Cutlass Supreme, \$1,800. 213-372-4691. A
- Simca**, 1964, 67,000 mi., \$50. 213-320-6887. A
- Falcon**, 1960, setup for drag or street, less eng. & trans., \$150. 213-449-0361. A
- Van**, 1964 Ford Econoline, 6 cyl., stick shift, radio, \$800. 213-221-0991. A
- Station Wagon**, 1963 Dodge Dart, p/s, r/h, auto. shift, \$295. 213-375-4574. A
- Chevrolet**, 1958 Impala, 75,000 mi., 327 cu. in. eng., \$395. 213-324-9087. A
- Volkswagen**, 1968 Fastback, AM-FM radio, \$1,050. 213-379-8993. A
- Ford**, 1969 Fairlane 500, 15,000 mi., full power, a/c, \$2,095. 213-377-8887. A
- Chevrolet**, 1965 Chevelle Malibu SS, p/s, auto., 6-cyl., \$650. 213-865-5133. A
- Falcon**, 1961, 2-dr., stick, many new parts, \$125. 213-370-3418. A
- Challenger**, 1970, 23,000 mi., min. bid \$2,295. Credit Union ext. 1117. A
- Mustang**, 1967, V-8, p/s, d/brakes, \$1,300. 213-394-6315. A
- Volkswagen**, 1969 squareback, auto., AM-FM, 27,000 mi., many access., \$2,000. 714-826-1269. A
- Volvo P1800**, 1962, AM-FM, radials, \$895. 213-329-1705. A
- Pickup**, 1970 Toyota Hilux, r/h, h.d. rear bumper w/trailer hitch, \$1,825. 805-643-6955. A
- Ambassador 990**, 1965, 4-dr., V-8, auto. trans., power d/brakes, p/s, a/c, many extras, \$725. 213-360-8800. A
- Mustang**, 1965, 289 cu. in., p/s, r/h, auto., \$725. 213-762-2284. A
- Pickup**, 1952 Chevrolet, 1/2-ton, complete o/haul, \$400. 714-534-6699. A

Household Items For Sale

- Rug**, 9x12 oval, braid, \$20. 213-325-1277. B
- Vent-A-Hood**, copper tone, 42", surface unit, 36", 4-burner & bltin. oven & broiler, both O'Keefe & Merritt, & gas, \$75 or sell sep. 213-645-4697. B
- Range**, yellow, Wedgwood, gas, 4 burners, oven & broiler, \$20. 213-644-5487. B
- Dishwasher**, Sears Lady Kenmore, portable or may be built-in, \$135. 213-676-6230. B
- Dresser**, w/mirror & 2 night stands, \$150. 213-830-5284. B
- Sewing Machine**, National rotary elec. standing wood cabinet, \$25. 213-376-4831. B
- Dryer**, elec. Whirlpool, \$50; sofa & platform rocker, \$25. 714-776-2620. B
- Studio Couches**, 2, w/bolsters, \$50 both, \$30 ea. 213-370-7105. B
- Dining Table**, blond Heywood Wakefield, 4 straight & 2 arm chairs, \$40. 213-673-2332. B
- Bedroom Set**, walnut, dresser, 2 end tables, king size bed, bedspread, matching headboard, mattress pad, 2 lamps, \$125. 213-820-4134. B
- Sofa**, brown, 10', \$40. 213-675-2510. B
- Couches**, 2, dining & bedroom set, other misc. items, \$1,500 or sell separately. 213-478-5344. B
- Dining Room Table**, solid maple dropleaf, seats 12, \$75. 213-943-8187. B
- Stove**, deluxe, 2-oven, elec., \$75; twin bed, \$15. 213-670-1753. B
- Bedroom Set**, 4-pc. Thomasville, walnut & pecan, headboard w/frame, dble. dresser & mirror, 2-drvr. night stand, will incl. box springs & mattress, \$250. 213-670-6090. B

Miscellaneous For Sale

- Trailer**, 17 1/2' Ideal, sleeps 6, self-contained, shower, 12 V., 110 V. & butane lights, wheeled dolly, awning, \$1,500. 714-830-9499. C
- Unicycle**, Schwinn, \$20. 714-871-8635. C

Miscellaneous For Sale

- Mobile Home**, 1955 Flamingo, 8' x 35', furn., 8' x 30' alum. awning, birch paneling & ceilings, 6' x 6 1/2' steel storage shed, in Paramount, \$1,350. 213-634-8598. C
- Catamaran**, 18', full batten sails, fiberglass o/plywood, \$400. 213-421-1300. C
- Mobile Home**, 2-bdrm., 2 baths, adult 5-Star Park, landscaped, porches, awnings, shed, Harbor City area, no pets, \$10,500. 213-325-4390. C
- TV**, Zenith 23" b & w console, walnut, \$40. 213-325-1277. C
- Kittens**, Siamese, sealpoint, avail. Aug. 15, \$10. 213-320-6685. C
- Bicycle**, Schwinn Stingray, boy's, \$25. 213-831-6567. C
- Golf Clubs**, Spalding Touring pro woods 1, 3, & 4, alum. D3, \$32.50. 213-679-2727. C
- House**, 3-bdrm., den, 1 1/4 bath, lge. lot, 24' x 30' workshop, bltins, cpts., dps., in No. Torrance, \$36,000. 213-329-5459. C
- Trailer/Houseboat** comb., tri-hull fiberglass, never used, \$5,000. 213-645-0758. C
- TV set**, 19", portable, new picture tube, \$35. 213-377-6435. C
- Amplifier**, Heathkit W-5M Williamson-type, pre-amplifier, WA-P2, 2 ea., \$47. 213-376-4831. C
- Amplifier**, dual Showman w/covers, \$400; guitar, Gibson EB3 bass, case, \$300. 213-370-6959. C
- Shotshell Reloader**, Pacific DL-366 progressive, 12 ga., extra shot & powder bushings, auto. primer feed, \$125. 805-495-7550. C
- Transceiver**, Realistic Mini-Six, mod. TRC-10, 6 ch. c.b., stainless steel whip antenna, \$50. 213-645-6211. C
- Home**, Brentwood 3-bdrm., 2 baths, fenced lge. yard, \$53,500. 213-645-1489. C
- Pool Table**, 4 1/2 x 9', custom made, cherrywood rails, complete, \$750. 213-833-6562. C
- Outboard Motor**, British Seagull, mod. 40, featherweight, 2 h.p., used 10 hrs., w/case, \$100. 213-645-7931. C
- Mini Bike**, Rupp, 4 h.p., front & back shocks, buddy pedals, d/brake, \$90. 714-846-1858. C
- Travel Trailer**, 1964 Ideal, 16', s/c, gas stove & refig., sleeps 4, twin beds, elec. brakes, Arctic Circle cooler, other extras, \$975. 213-633-1652. C
- Motorcycle**, 1967 Honda, 90 cc, needs minor repair, \$125; swing set, child's, \$15. 213-377-0783. C
- Lot**, 60' x 120', on Rim Of The World Hwy., Running Springs, \$4,500 cash or \$4,950 terms. 213-862-4732. C
- Typewriter**, IBM Model C, elec., \$160. 714-968-7426. C
- Motorcycle**, 1970 SL-90, limited production model, \$300. 213-377-5897. C
- Books**, hardbound & paperback, assorted subjects, 25¢ ea. or less. 213-679-1631. C
- Duplex lot**, in Havasu City, Ariz., 82 x 130, improved area, view of lake & mountains, low int. & taxes, \$10,900. 213-323-7877. C
- Trailer**, utility, 4' x 8' x 3', spare mounted tire, lights, \$150; tape recorder, Akai (Roberts), M-7, 4-track stereo, \$175. 213-645-6494. C
- Luggage Carrier**, for auto, encl., weatherproof, \$20. 213-323-4500. C
- Cemetery Lot**, dble. internment, in El Portal Sec., of Inglewood Park Cemetery, \$800. 213-674-3558. C
- Piano**, upright, recently refinished, \$187. Box 1401. C
- Acreage**, 2 1/2 acres fronting on new Adelanto pvt. airport, M-1, \$75 dn., \$75 mo., \$7,500; 7 1/2 acres, SE. of Palmdale, level, paved frontage on Phelan Rd., \$13,500. 213-378-1026. C
- Books**, detective-type, vols. 1-49, \$30. 213-677-8868. C
- Ski Boat**, 1970 Mini Sport, 40 h.p. Mercury eng., 60 running hrs., \$1,600. 714-644-1195. C
- Trail Bike**, 1964 Honda 55, 1500 total mi., eng. recently o/hailed, car bumper carrier, \$145. 213-371-5072. C
- Breathing Machine**, Bennett AP-4 positive pressure, use w/out oxygen, almost new, \$325. 213-674-8613. C
- Loudspeakers**, JBL mod. 130A, LE1750LH, N1200 crossover, RJ cab., \$170. 213-756-0704. C
- House**, 2 lge. bdrms., 2 baths, den, floor to ceiling f/place, wet bar, bltins, 5 min. to Northrop, \$32,500. 213-675-3996. C
- TV**, RCA Victor, color, 23", in walnut case, 3 yrs. old, \$200. 213-820-4134. C
- Baby Buggy/Car Bed**, sun canopy, dk. green, \$30. 213-645-7972. C
- Saxophones**, 2, 1 alto, \$100; 1 tenor, \$150. 213-423-1363. C
- Hot Wheel Track**, super chargers, loops, jump ramps, air showcases, \$20. 213-679-5177. C
- Rowboat**, 13 1/2', oars, anchor, life preservers, \$75. 213-349-5983. C
- RDF**, Bendix portable, \$40; flare gun, \$10. 213-645-3690. C
- Sailboat**, fiberglass sloop w/9 h.p. elec. Chrysler OB., sleeps 4, length WL 21 ft., bow to stern pulpit 25 ft., CCA rating 20.2, main sail & lapper, 263 sq. ft. canvas cover, \$5,275. 213-325-4580. C
- Home**, 3-bdrm., 2 baths, f/place, \$36,000. Box 1402. C
- Mobile Home**, 20x57, 2-bdrm., den, screened porch & patio, d/washer, bltins, cpts., dps., near Anaheim plant, Casa Hermosa Pk., \$14,500. 714-821-6049. C
- Wheels**, 4 Impe mag, for 240Z, \$180. 213-867-4757. C
- Lot**, Salton City, C-2, corner, 65x245, on Hwy. 86, your terms w/no interest, \$9,790. 714-846-0867. C

CONTRACT SIGNED FOR NAS UNITS

Northrop Architectural Systems has signed a contract for more than 1,000 windows and nearly 200 doors of the Arcadia line for the new Aliso Villas fourplex townhouses at Mission Viejo.

The Arcadia line of sliding glass doors and windows is used extensively in the Southland.

The Aliso Villas are condominium-type dwellings. The 55-building development will be made up of 220 individually-owned units in four basic floor plans.

Rides and Riders

Rides Wanted

7:30 a.m. — 4:12 p.m.

Meadows & 21st St. off Marine, Manhattan Beach. Need ride home. Helen Radl, AFPRO ext. 1900, 213-379-0369.

Miscellaneous For Sale

House, 2-bdrm., 1 bath, patio, Mar Vista, \$24,500. 213-390-2834. C

TV, Magnavox, needs some repair, many new tubes incl., \$20. 213-329-1861. C

Wanted to Buy

Bicycle, 10-spd., will repair. 213-375-8460. D

Cassette Deck, stereo. 213-679-7378. D

Gas Tanks, saddle-type, to fit 1962 Chevrolet pickup. 213-374-0419. D

Shop Manual for 1963-65 Buick Riviera. 213-370-4216. D

Vacuum Cleaner, upright, must be in good condition. 213-675-6397. D

Bicycle, used Schwinn or Peugeot, boy's 10-spd., in good condition. 714-524-5682. D

Swimming Pool, prefer 10' x 3', reasonable. 213-323-4257. D

Free (To Be Given Away)

Dog, German shepherd, 10 mos. old, female, good w/children. 213-635-8442. F

Rentals Offered

Cabins, Lake Gregory & Crestline, make reservations early, sleeps 6, \$65 wk. 213-821-8150. G

Cabin, Moonridge, Big Bear Lake, 3-bdrm., 2 baths, f/place, completely furn., family only, \$125 wk., \$50 w/end. 213-326-7232. G

Cabin, Lake Arrowhead, close to lake & village, open beam-type w/fireplace, bar & patio. \$85 wk., \$35 w/end. 213-845-5949. G

House, 4-bdrm., Palos Verdes Pen., family rm., den, front & rear patios, landscaped, water incl., lease, \$425 mo. 213-377-1231. G

Cabin, Lake Arrowhead, no. shore, 200 feet from lake, pvt. dock, \$120 1 wk., \$200 2 wks. 213-375-2255. G

House, 4-bdrm., 2 baths, Lake Arrowhead, furn., beach & lake privileges, sleeps 8, \$175 wk. 213-836-8285. G

Condominium, 2-bdrm., Palm Springs area, furn., pool, \$60 w/end, \$100 wk., \$295 mo. 213-324-5709 or 213-327-8994. G

House, unfurn., 1 block from beach in So. Redondo, 2-bdrm., fenced yd., f/place, \$250 mo. 213-375-3505. G

Cabin, Mammoth, for 1971-72 season beginning Nov. 15, sleeps 15, 2 baths, f/place, kitchen, walk to entrance gates, \$600 mo., utilities incl. 213-329-1861. G

Rentals Wanted

Sleeping Accommodations, for two, in Catalina, Sunday and Monday night, Sept. 5 & 6. 213-675-3237. H

Child Care

Babysitting, by the hour, part-time only, my home, Inglewood area. 213-671-1652. I

Personals

We wish to express our sincere gratitude & heartfelt thanks to the fellow workers & friends for the kind deeds & messages of sympathy during the illness & loss of our husband & father. MRS. LENORA TORELLI, RICHARD & DONALD. L

I wish to thank all my friends at Northrop for all the cards, flowers & phone calls received during my recent illness. GLENNIE LEECHES. L

Business Opportunity, high profit potential, little or no investment. 213-398-4893. L

I wish to thank the many friends who participated in the party & gift upon my retirement. DEL CLAWSON. L

We wish to express our sincere appreciation to all our friends at Northrop for their kind expressions of sympathy at the recent death of our mother. MARION COATES, MAC McLARNEY, FRED BRISCOE. L

We would like to extend our deepest thanks & appreciation to the Northrop employees on the death of Harold "Pappy" Bunn. MRS. JANE BUNN & FAMILY. L

My sincere thanks to my many friends at Northrop for the wonderful goodbye luncheon & gift. BRUCE L. SPENCER. L

For Sale or Trade

Deep Fat Fryer, Dormeyer, \$7 or trade for Blue Chips. 213-645-7972. M

Roof Rack, parts chest, metal, 18-drvr., & parts bin, \$100 or will trade for mags to fit Econoline van. 213-941-1865. M

EDITOR'S NOTEBOOK

July is a special month for the more than 50,000 men and women comprising the Naval Air Systems Command. This fine organization is marking its 50th anniversary. On behalf of all Northrop personnel we salute them as they begin their second half-century of providing the Navy and Marine Corps with the best air weapons systems available from current technology.

Over the past 50 years the Naval Air Systems Command and its predecessor organizations—the Bureau of Aeronautics and the Bureau of Naval Weapons—have meticulously engineered the life cycle of all air weapons systems from their design through deployment.

* * *

While we are on the subject of anniversaries, we would like to pass on an interesting note brought to light when two Aircraft Division employees—Fred Wolfe and Ruby Soderlund—marked completion of their 25th year with Northrop. Both reported for work on the same day, June 3, 1946. Fred took over duties as cafeteria manager and Ruby became an office clerk. And for 25 years the two have worked together in Food Services, certainly some sort of record for continued association among Northrop people.

Adding to this unusual situation is the fact both Fred and Ruby came to Northrop after working for the Canteen Co., although Fred was assigned to the Northrop service group and Ruby to one serving North American. They met for the first time on their first day at Northrop.



FAYZE FANDEY, CENTER, DINES WITH RELATIVES

We also have a report on another celebration, one which could have been scripted in Hollywood. Fayze Fandey, Aircraft Division Pricing administrator, was involved. Fayze is of Lebanese ancestry — his father migrated to this country from Lebanon in 1914 — although he has had no occasions to meet relatives from "the old country."

Recently, when Fayze was tabbed for a business trip to the Middle East, his father suggested he contact two of his sisters still living in the Beirut, Lebanon, area. A letter was dispatched informing the aunts of their nephew's pending arrival. And Fayze dutifully telephoned when he had some spare time. Arrangements were made for the relatives to pick him up at Northrop's Beirut office. At the appointed hour assorted relatives arrived and zeroed in on a likely-looking target for their affection. After much handshaking, back-patting and name-calling, Manny Gonzalez, Aircraft Division vice president, extracted himself from the melee and made them understand that the man using the telephone, not he, was their relative from America. In short order the whole scene was repeated.

Fayze was hustled into a car and driven to the village of Akbeh, about 25 miles from Beirut. Things happened so fast from that point that Fayze has difficulty recalling it all. First there were people, many, many people. Fayze counted 70 in one house at one time. Translations weren't always the best, but he was led to believe that everyone in the village was a relative.

Then there was food, tons and tons of it, all served in an air of a grand feast. While most of the relatives attended the big feast, each, in the custom of the country, insisted that Fayze visit their home for more food, coffee, soft drinks and sweets. He reasoned that there were few homes in the village of about 500 people he did not visit during his stay there.

When time came for his departure, Fayze was loaded with gifts for members of his family. Most of them were handmade items of wearing apparel.

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WORKING ON NEW REC CLUB FACILITY
Hal Hunsberger, Bill Umbenhauer and Clyde Corder checking work progress.

New Rec Club Facility Gets Ready for August Opening

Construction of the new Recreation Club Facility on the ground floor of the Administration Building is rolling along virtually on schedule for an opening the first week in August.

The Recreation Club, through funds obtained by vending machine sales in the plant, has awarded contracts to several firms for the work.

Included are Conejo Valley Plumbing, Thousand Oaks, which used a backhoe to dig a piping trench for new drainage, as well as install plumbing fixtures, ABC Acoustics of Ventura for interior work and John Taft Electric Co. of Thousand Oaks for electrical work.

Hal Hunsberger, chairman of the Rec Club's Facility committee and Bill Umbenhauer, acting Rec Club president, are working with Clyde Corder, Facilities Planning engineer, in overseeing the work.

The new facility will contain many features.

A central meeting room will be available for lunch time and after-hours programs. The main room has storage facilities for the myriad projects and interests of members.

Two smaller rooms are to be used by specific clubs. The Rockhounds will have a special work

area for grinding and polishing their stones and gems and the Camera Club will have a darkroom.

Rec Club officials and division management chose a site especially advantageous. Located next to the Personnel office, the site has easy access, restrooms and meets all security requirements.

"We're looking forward to occupancy," said Mr. Hunsberger. "And I know others equally active in the Rec Club share our anticipation."

VENTURA DIVISION RECREATION CLUB ROUND-UP

Ventura Division golfers are having such a good time in the Northrop Twilight League at the Sunset Hills Golf Course in Thousand Oaks that they have extended the season another six weeks.

The team of Jim Moore and Paul Scott leads the mixed handicap league as of this printing with a cumulative net score of 587. Several strokes back in second place are the duo of Bill Kearney and John Wells at 592. Tied at 601 each are the teams of Jack and Lillian Bunnell and Wes Steyer and John Breneman.

A dozen teams are entered in the league. Play will continue through August, according to league chairman Paul Scott. Mr. Scott good naturedly agreed to extending the league even though his team is in first place at the originally scheduled closing date.

"They just wanted to play longer so they'd have a chance to catch Jim and me," he laughs. "But we all know they don't have a chance at all."



To paraphrase an old adage, "It's not whether you win or lose, it's how you play the game."

Manufacturing R & D Men Devise Unique New Fabrication Technique in Plastics

Two members of the Ventura Division's Manufacturing Research and Development team have come up with a dramatic new method of plastics fabrication which will significantly reduce costs on certain MQM-74A, T-38 and F-5 parts.

Bill Lang and Dick Schwend have been working on this project, along with others as their other duties permitted, for more than a year. It recently came to fruition with the completion of assembly of special machinery and process requirements leading to pilot production of inlet ducts for the MQM-74A target.

This plastic part has been made for several years using salt mandrels as expendable tooling. The pre-impregnated fiberglass was applied to the salt mandrel, vacuum bagged and then cured in a heated oven. This resulted in a lengthy process and total loss of costly mandrel salt for each part fabricated.

Troublesome

The parplast—a plaster of Paris-like substance—requires a considerable amount of time and labor before the product can be fabricated. Also, after the curing procedure, the parplast was difficult to remove from the part and could not be re-used.

Mr. Lang and Mr. Schwend have made invention disclosures to Northrop on their new procedure which utilizes their new material in the place of the parplast and three special machines to assist the process to improve productivity.

Kiddingly referring to themselves as "alchemists," the two men created an alloy of chemicals, which when poured into a specially designed mold and rotated on a gimbal machine will produce an expendable tool. The gimbal machine rotates in two directions simultaneously producing a hollow mold.

After tooling, the mandrel is ready for laminating on a specially designed machine that rotates the mandrel as the fiberglass is applied. Pre-preg material is then

wrapped around the new mold as it turns on a rotating machine.

Now somewhat resembling a large sausage, the wrapped mandrel is hung in a unique radiant oven where it rotates on a vacuum chuck. Thirty minutes later the fiberglass part is cured.

The alloy of chemicals—they're still looking for an appropriate and more descriptive-sounding name—is given a little more intensive heat treatment and melts. The melted alloy is recovered and re-used with little or no loss.

Thus, separation of part from mold is easily accomplished. The new part is as smooth inside as glass. And time required to do the job has been reduced considerably; so has cost.

So far only the MQM inlet ducts have been produced in this manner. "But at this point there's no reason we couldn't do all typical plastic parts in this way," noted Mr. Lang.

Dollar savings on the MQM inlet ducts alone are projected at \$18,000 per year.



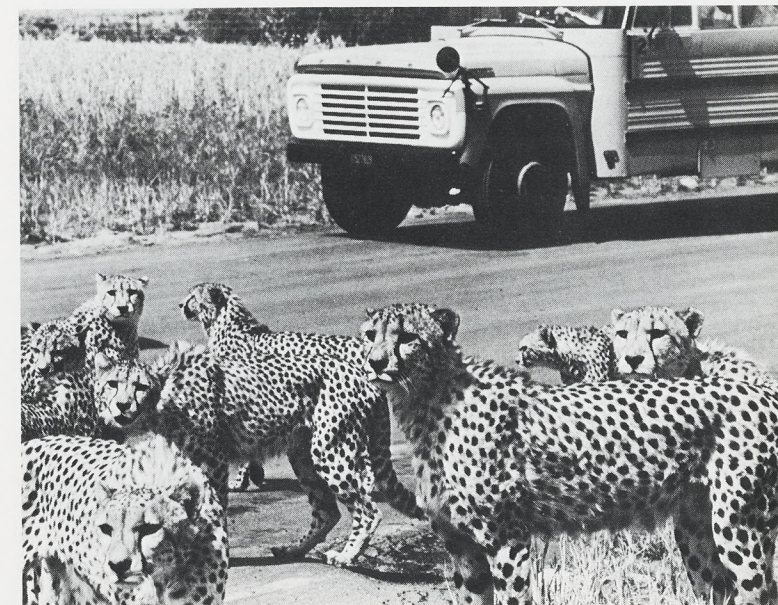
PREPARING NEW STYLE MANDREL
Rose Harrington rubs down mandrel prior to laminating; new part at right.

roaming elephants, rhinoceroses, zebras, giraffes, hippopotami, ostriches, camels, chimpanzees, and 21 different species of African antelopes, all in painstakingly recreated native settings."

You drive in your own car through the preserve with the animals roaming around and sometimes stopping traffic.

In addition to the "join-in-yourself" zoo, Lion Country's entertainment area adjoining the wildlife preserve is constantly adding new features. Scheduled for early construction are a 260-seat restaurant, underwater attractions, and a 300-foot waterfall.

One admission price takes you all the way through.

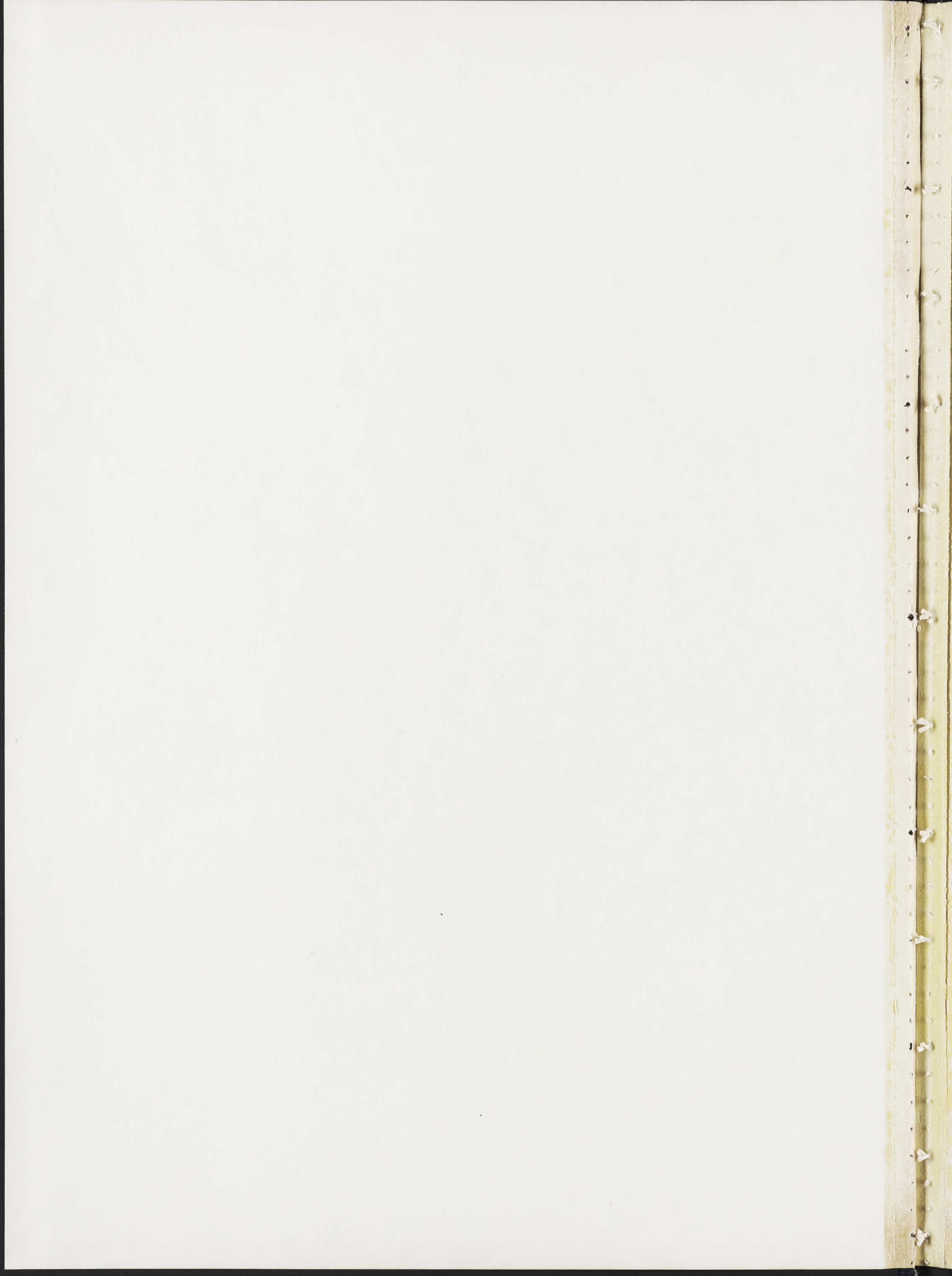


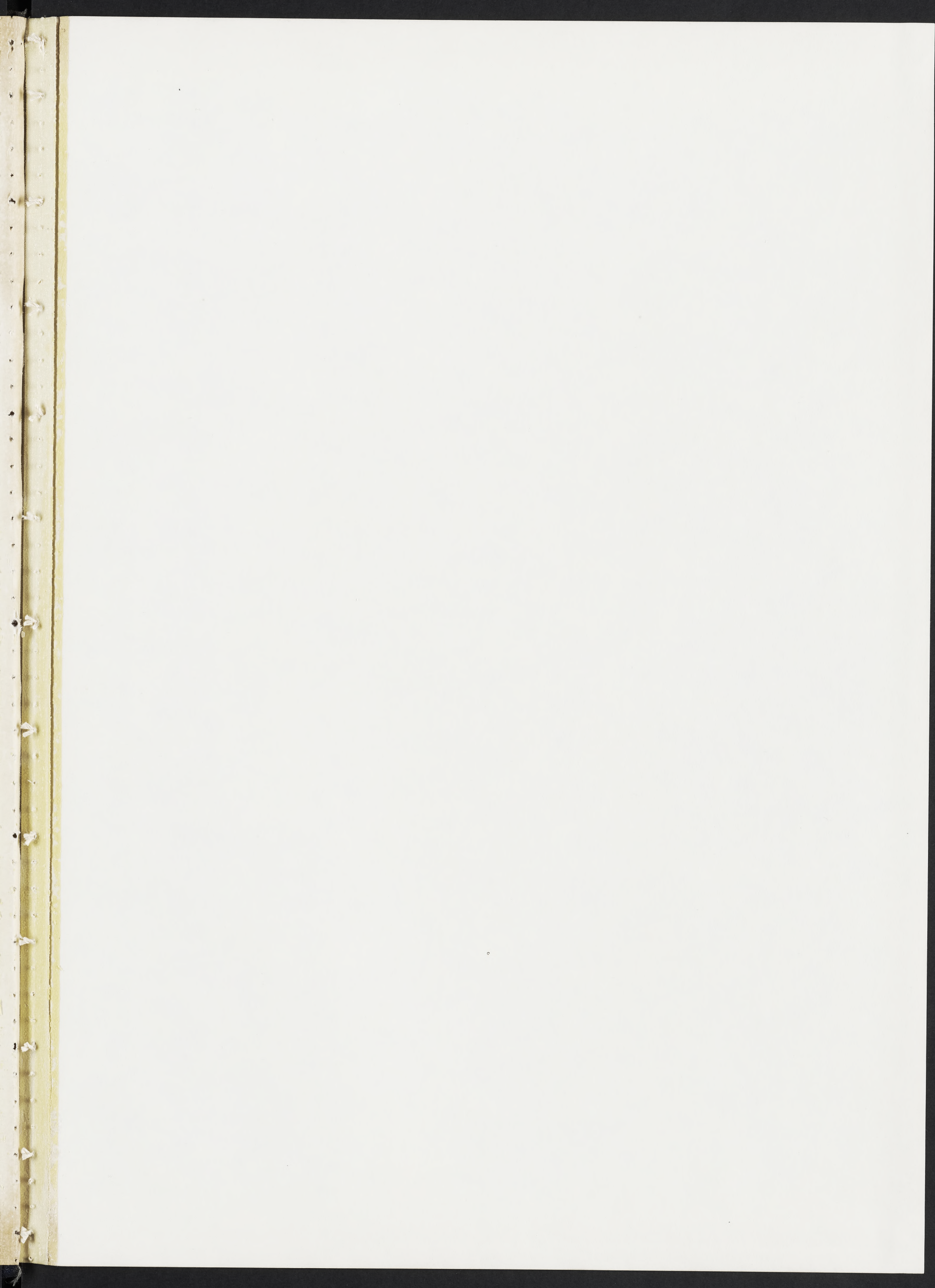
STOP FOR CHEETAHS
Everyday scene at Lion Country Safari in Orange County.

Pat Silvas Wed To Leroy Chavez

Two Ventura Division employees are now sharing the same last name after their June 26 wedding at Santa Clara Church in Oxnard.

The former Pat Silvas, a plastics laminator for three years, is the bride of Leroy Chavez, a machinist. Two Ventura men, Eli Salas Jr. and Danny Beltran, were ushers at the wedding.





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